APPENDIX

TO THE

MONTHLY REVIEW.

VOLUME the SIXTY-FOURTH.

FOREIGN LITERATURE.

ART. I.

Lettres Phyſiques et Morales ſur l'Hiſtoire de la Terre et de l'Homme, &c.—Letters Philoſophical and Moral concerning the Hiſtory of the Earth and of Man; addreſſed to the QUEEN of Great Britain, by J. A. DE LUC, Citizen of Geneva, Reader to her Majeſty, F. R. S. Correſpondent Member of the Royal Academies of Sciences at Paris and Montpellier, in Five Volumes 8vo. Hague, 1780. 1 l. 10 s. Sold in London by Elmſly, &c.

WE return with pleaſure to this excellent work, though we can only give our Readers an imperfect and general idea of the riches it contains. In a former account * of its valuable contents, we followed the ingenious Author, in his analytical progreſs through a multitude of phenomena, and obſervations founded on them, to the great *revolution* that produced the *preſent ſtate* of our globe †,—the ſea's *changing its bed* and covering the *ancient* continents, after having previouſly covered *ours*.

After having aſcertained this important event by an exact analyſis, M. DE LUC enters into a ſynthetical examination of the reſults of this inquiry, and gives us the phyſical hiſtory of the earth from its primordial ſtate to the revolution that occaſioned its preſent aſpect. In deſcribing the changes which the ſurface of the earth has undergone, he ſets out with this poſition, that when the ſea covered *our* continents, it had a *mountainous bottom*, which neither the waters nor any known cauſe had formed, and which therefore our Author calls *primordial*. Some of theſe

* Vid. *Appendix* to the 62d volume of our Review, p. 527.
† See the Article referred to in the preceding *Note*.

mountains aroſe above its ſurface, and formed iſlands: theſe iſlands and the ancient continents were fruitful, and were peopled: the ancient ſea, which covered the modern ones, had its tides, its currents and tempeſts. Theſe powers, acting upon the *ſoft matters* which are known to have formed the ancient bottom of the ocean (when it covered our continents), produced accumulations of calcareous ſubſtances, more or leſs mixed, in proceſs of time, with marine bodies. The rivers, in the mean while, carried to the ſea ſcattered fragments of *terreſtrial vegetables and animals*; the ſea, itſelf, waſhed them off its coaſts; and theſe materials, tranſported by its currents, became a *ſecondary* ſoil or ground upon its primordial bottom. Our Author ſhews, how *fires* kindled and *elaſtic fluids* (formed by the fermentation, which the waters, filtrated through theſe accumulated bodies, produced) made various openings in the bottom of the ocean, from whence proceeded torrents of liquefied ſubſtances and *lava*, which gave riſe to the volcanic mountains, obſervable on the ſurface of our continent. The cavities, produced in the interior parts of the earth by the eruption of theſe liquefied ſubſtances, aſſumed the form and direction of *galleries*, and thus undermined the *bottom* of the ſea to a conſiderable extent. (We abridge and refer the Reader to the work itſelf for the details and proofs of all this, which are abundant and ſatisfactory.) Theſe excavations, when large quantities of *elaſtic fluids* were engendered at once, produced *earthquakes*, which ſhook even the mountains, and occaſioned in them *chinks* or openings. Theſe chinks were prevented from cloſing by the ruins that fell into them from the ſides of the mountains, and, being afterwards filled with heterogeneous ſubſtances, in whoſe compoſition the ſea-water and ſubterraneous fire may have concurred, exhibited *veins*, in which, ſince they have been dried, the filtration of the waters has produced a variety of changes, of which many are obſervable.

The bottom of the *ancient* ſea (which covered our continents before the Deluge) had under it caverns, whoſe vaults, being thinned and impaired by the excavations made by *ſubterraneous* fires, were either pierced, or fell in from time to time. Hence the gradual ſinking of the ſea beneath its level, from the entrance of its water into the caverns, which diminiſhed the influence of the tides on its undulations; while, from its bottom, being traverſed by *ſecondary* elevations, conſiderable changes enſued in the direction of its currents, and conſequently a great variety in the height, poſition, and nature of its accumulations. It is very remarkable, that the ſea, after having made great acquiſitions of *calcareous* matters in the firſt period of its operations, ceaſed almoſt every where to accumulate this kind of ſubſtances, and ſubſtituted *vitreſcible* matters in their place, long before it with-

drew from our continents, and in a third period had ſcarce any thing to tranſport from one place to another but marl, clay, and ſand, the latter of which, more eſpecially, it ſpread both on its primordial bottom, and alſo on the ſecondary ones formed by its own preceding *depoſits*.

The continents, which exiſted in a ſtate of population and fertility while the *ancient* ſea covered ours, though they did not form a ſolid maſs, but were, properly ſpeaking, vaults, which covered immenſe caverns, maintained their elevation above the level of the ſea by the ſtrength of their pillars, which, being of *primordial* matter, were ſolid and ſtable. But the particular changes, which the ſubterraneous fires produced in the bottom of the ancient ſea, opened paſſages for its waters into the interior of the earth, and thus introduced them into ſome of the caverns, which were covered by the ancient continents. The fermentation, produced by this irruption, ſhook the pillars of the primitive earth, which ſinking into its caverns, the *continents* diſappeared: their ſurface deſcending below the level of the ſea, made room for the waters to ſpread themſelves on every ſide; but as the declivity was gentle, and the borders of the baſon which emptied itſelf were unequally elevated, the inundation, though rapid, was only ſuperficial, and neither put in motion, nor drew after it, the ſandy bottom, which ſtill remains entire in our continents.—At the end of this firſt part of the great *revolution*, the ſea covered all the globe, except the iſlands of its *ancient bottom*, which increaſed in number and magnitude, but continued ſtill ſeparate, until the weight of the water, added to that of the ſuperior vaults, cruſhed the inferior ones, and deepened more and more the new bed of the ocean; ſo that, at laſt, by a motion rapid though not violent, all the waters withdrew from their former bottom, and left our *continents* dry.——The extinguiſhed volcanos on our continents are a ſtanding proof of the ſolidity of M. De Luc's ſyſtem; as alſo the ſituation of the volcanos actually known, which are all in iſlands, or in places near the ſea. As ſoon as our continents were delivered from the waters, the fermentations which they produced in combination with fire and other phyſical agents, ceaſed; theſe agents, having no more that weight of water to raiſe by which they ſhook the vaults of the galleries, made ſome exploſions indeed, which diſperſed the ruins of the ſhattered ground, and covered ſome parts of our continents with a diſcharge of *primordial ſtones*, but their efforts were exhauſted for want of aliment, in galleries, whoſe vaults were pierced, inſtead of caverns, where there would have been oppoſition and materials to foment their activity. The old volcanos were therefore extinguiſhed (and their numbers were prodigious, as we ſee by the late important publication of M. *Faujas de St. Fond*), and new volcanic erup-

tions aroſe in the new bed to which the waters withdrew. The Grecian, Sicilian, Indian, and Northern Iſlands may be alledged as illuſtrations of this *hiſtory* of the firſt of the two periods into which our Author divides that part of the duration of our globe, which is acceſſible to our inquiries by the phenomena it exhibits.

Having treated the *ancient* hiſtory of our globe, ſo far down as the great revolution (or Deluge) that produced the continents we actually inhabit, our Author proceeds to its *modern* hiſtory, which takes in the period between that revolution and the preſent time. Here our ingenious inveſtigator has ſtill more ample ſuccours and ſurer guides, as all the *cauſes* that began to operate upon our globe, after the formation of our continents, continue ſtill their action and influence. By the view of theſe an eſtimate may be made both of their paſt and preſent effects, and this view will enable the ſagacious inquirer to meaſure, with no ſmall degree of preciſion and probability, the time that has elapſed ſince theſe *cauſes* began to operate.—Accordingly, our Author enters into this inveſtigation. He obſerves, that the two general ſources, from whence the new earth (our preſent continents) received the germs of fertility and population, were the plants, ſeeds, and animals, that the ſea, during the great revolution, carried off from the ſinking continents, and which, driven by the winds and waves, were thrown upon the ancient iſlands (our preſent mountains), in proportion as they roſe out of the departing ocean, and afterwards upon the borders of the new *continents*. Theſe depoſited materials of vegetation continually accumulated—the *turbification* * of vegetables in low grounds of a ſandy bottom—the diminution of fertility on the high mountains from the accumulations of ſnow and ice, which conſtantly increaſe (and would have already cruſted over theſe mountains entirely, if the antiquity of our globe was ſo remote as ſome philoſophers pretend)—the waſtes of the mountains and the *talus* formed by the mouldering parts of them that fall from time to time—and the ſubſtances which the rivers carry in their current to the ſea;—theſe are the *five claſſes* of phenomena which M. De Luc employs, ingeniouſly, to prove the recent origin of our continents, and to ſhew that the preſent ſtate of the earth's ſurface is not of a very ancient date. This is farther confirmed, as our Author obſerves, by the hiſtory of mankind, whoſe deſtination it is to *cultivate the earth* and to *ſtudy nature*, and who, nevertheleſs, have hitherto made but ſmall ſteps towards the accompliſhment of theſe important purpoſes.

After having conſidered the *phenomena* which aſcertain the

* We have adopted from the French this term, which expreſſes the change of vegetables into a turfy earth.

great *revolution* above mentioned, M. De Luc examines thoſe which characteriſe in a more particular manner the nature of that revolution, and ſhew, that it was effectuated 'by the paſſage of the ſea from one part of the globe, which it had *formerly covered*, to another part, which it *had not covered.*' The marine foſſils, contained in the mountains, hills, and plains of our continents, and which characteriſe animals, of which ſome claſſes have not, as yet, been diſcovered in any *ſea*, and others that have only been obſerved living in ſeas at a great diſtance, are employed by our Author to prove this paſſage, as it has been already deſcribed.—The remains of a great number of *terreſtrial vegetables* and *animals* are found in our continents (incloſed in the ſubſtances which were accumulated by the ſea when it formerly covered them), of which animals a very conſiderable number are different from all the claſſes of *living* animals known in our regions; while others belong to claſſes that only exiſt in the oppoſite hemiſphere, and others again have not been, as yet, diſcovered living in any part of the globe.—All theſe circumſtances are ingeniouſly brought to ſhew, that there exiſted populous and fertile continents during the period when *ours* were covered by the ſea.

That fragments, ſkeletons, and remains of animals, which at preſent live only in the ſouthern regions, ſhould be found in the bowels of the earth in the northern parts of our hemiſphere, is indeed a very ſingular phenomenon. M. *De Buffon* accounted for it by his whimſical hypotheſis of the original fiery fluidity of our globe, and its gradual refrigeration, which produced the removal of ſeveral claſſes of animals towards the Equator, which had formerly inhabited the regions of the North. This ſyſtem, which was a pretty entertainment for the beaux and belles of Paris, intoxicated ſome people from whom more wiſdom might have been expected; and many readers were ſo amuſed to ſee the elephants and rhinoceroſſes galloping towards the Equinoctial, that the *epochas of Nature* * were almoſt univerſally applauded, and warmly defended. But they have had their day, like the elephants of the North, and are now contracting the influence of that *refrigeration* which their inventor attributes to our terreſtrial globe. Our Author has not ſuffered them to cool gradually, or to die away of themſelves: he has given them a finiſhing, a deadly blow, from which it will be impoſſible for all the magic of M. *De Buffon*'s pen to recover them. The Letters in which he examines M. Buffon's hypotheſis, and M. *Mairan*'s notion of a heat peculiar to the earth, on which this hypotheſis is founded, are ſingularly intereſting and inſtructive; and ſhew in reality that M. De Luc is a maſter in the ſcience

* See the Appendix to Vol. lxi. of this Review.

of natural philoſophy. He refutes theſe two philoſophers, who both maintained the intrinſic *heat* of the earth, but deduced it from different cauſes; the one attributing it to the earth's being a *piece of the ſun*, the other to a central fire. He demonſtrates (we may uſe the term boldly) againſt M. De Buffon, that the Sun is neither a *liquefied* and burning ſubſtance, nor could be put in fuſion by the motion of comets around him—that the planets were not ſtruck out of the Sun by a comet—that neither the planets nor the Earth were originally liquefied matter—that all M. Buffon's fancies relative to the vitrefied matters of the Earth, grown hard, to the formation of marine bodies from *organic molecules*, and of calcareous ſubſtances from marine bodies, are falſe in fact and unphiloſophical in theory—that all M. Buffon's notions concerning the formation and changes of our continents by the motion of the ſeas from Eaſt to Weſt, as alſo his ſuppoſition that the waters may again cover all the parts of our globe, are contrary to the principles of hydroſtatics, and to the authority of natural hiſtory—that it is not true, that the ſeas diminiſh in volume, or ſink gradually beneath their level—and that the ſucceſſive cooling or refrigeration of the Earth is a groundleſs notion, deſtitute of proof, and contrary to known and avowed facts.

In the courſe of theſe diſcuſſions, M. De Luc was led by M. Buffon's ſyſtem relative to the heat of the Sun and the flight of the elephants to the warmer regions of the globe) to enter into a very particular, circumſtantial, and analytical examination of the nature and cauſes of HEAT. The reſult of this examination is, that a ſubſtance, capable of producing *heat* in certain circumſtances, reſides in all bodies, and conſtitutes a part of their maſs, as long as it is reſtrained in its motions and lies dormant: but, when it is diſengaged from the bodies in which it reſides, by a cauſe that is capable of opening its priſon, it eſcapes, becomes an *elaſtic fluid*, and, in this new modification, is the *immediate cauſe* of HEAT. The rays of the Sun, though not warm, *in themſelves*, occaſion heat, by giving activity to this ſubſtance in the bodies on which they fall; and it is in conſequence of their influence, that this ſubſtance becomes an elaſtic or igneous fluid. The detail of experiments and reaſonings, by which our Author confirms this theory, are curious and inſtructive in the higheſt degree; it occupies ſixty pages of the laſt volume of this work; it renders palpable the non-exiſtence of warmth in the Sun and his rays, and thus overturns the ſyſtem of M. De Buffon; it expoſes the erroneous concluſions which M. de Mairan drew from ſeveral phenomena ill-obſerved and improperly employed; and it furniſhes our Author with a method of accounting for the different degrees of *heat*, obſervable in different years, in the ſame ſeaſons, notwithſtanding the uniform

form and conſtant action of the Sun, which has been conſidered as its *immediate* cauſe; for he ſhews that the *igneous fluid* is not, always, in equal quantity in the atmoſphere at different times, nor even in different parts of the atmoſphere at the ſame time.

After having confuted abundantly by facts and reaſoning M. De Buffon's notion of the ſucceſſive refrigeration of our globe, M. De Luc ſhews that it was not at all neceſſary to have recourſe to this hypotheſis for an explication of the frequent diſcoveries that are made in our countries, of the bones of elephants and other animals which belong to diſtant climates. Theſe diſcoveries are perfectly accounted for by the grand *revolution*, that ſunk the *ancient continents*, and drew off the ſea from thoſe which we now inhabit. Theſe animals lived in the *ancient continents*, from whence their bones were carried by the rivers to the ſea, which covered *ours*, and they were involved by the ſea amidſt the accumulations of its own productions, and buried in different parts of its bottom, which forms our preſent continents. Beſide, the change in the temperature of the atmoſphere, that muſt have attended the grand revolution, is employed ſucceſsfully by M. De Luc, together with his theory concerning heat, to ſet this matter in the cleareſt light.

We come now to the laſt part of this important work, in which the learned Author explains happily, on his hypotheſis, the *coſmological* ſyſtem of the *Book of Geneſis*, and cements that alliance between *Nature* and *Revelation*, which the wiſeſt men of all ages have diſcerned and admired, and which the minute philoſophers of the preſent times have made many impotent efforts to deſtroy. We refer the Reader to the work itſelf for our Author's obſervations on the Moſaic hiſtory of the *creation* and the *deluge*. He ſhews that that hiſtory is in perfect conformity with the diſcoveries of natural hiſtory and the principles of ſound philoſophy, though Moſes did not give himſelf out for a philoſopher, who had ſtudied the phenomena of nature, or the ſtructure, duties, and deſtination of man; but only alledged a ſpecial *miſſion* to teach men anew, their origin, and that of the univerſe, and to give them laws by divine authority. It is remarkable, that the *deluge* which has been a *ſtone of ſtumbling* to many dabblers and ſome adepts in philoſophy, and has principally led them to reject the Moſaic hiſtory as unworthy of credit, is the great proof of its truth and divinity in the judgment of M. De Luc. The particular circumſtances that connect the narration of Moſes with the records and diſcoveries of natural hiſtory, are "the *breaking up of the fountains* of the *Great Deep*—the time that paſſed from Noah's entrance into the Ark until his landing,—the expreſſion of the waters *returning* off the earth continually and *abating*, Genes. viii. 3.—the menace in the ſame Book (vi. 7.) to deſtroy *mankind*, and *the earth with them*

(as Michaelis renders the paſſage, differently from our verſion)—the olive-branch brought by the dove—and ſeveral others, which M. De Luc explains with the true ſpirit of a critic, and employs with the ſagacity and judgment of a philoſopher, in defence of the Moſaic hiſtory, and to the advantage of his own ſyſtem.

Theſe diſcuſſions are followed by a *diſſertation*, which fills 55 pages, printed in a ſmall letter, under the title of *Remarks on the Theological Syſtem of Revelation*, in which M. De Luc conſiders the objections which have been drawn from *reaſon* againſt the eſſential truths that have been taught, and the fundamental facts that have been eſtabliſhed, by revelation. Though this part of polemics has been ſo repeatedly and amply treated, as to prevent the expectation of much novelty in our Author's reaſonings, yet as M. De Luc is a keen thinker, who ſeems to have meditated ſtill more than he has read on theological ſubjects, he has ſtruck out here ſome uncommon points of view. Nay, even where he employs known arguments, he ſeems to have reviewed them, tried them anew, melted them down in his intellectual crucible to ſeparate from them any droſs that may yet remain, ſo that they often come forth with an air, that makes them look as if they were peculiar to him. The objections againſt the Moſaic hiſtory, taken from the ſeemingly ſevere diſpenſation of a general deluge, and from the miniſtry of angels, are fully anſwered; and the Book of Geneſis is ſhewn to be the baſis of all the revelations that are the conſtituent parts of the Chriſtian ſyſtem, not only as it is the firſt revelation in the order of time, but becauſe it furniſhes a ſolution of all thoſe general and previous queſtions, which ariſe from the idea of a revelation, ſuch as the exiſtence of a *firſt cauſe*, the *origin* of the univerſe, the *origin* of man, the poſſibility of a communication and intercourſe between *him* and the firſt cauſe, and the primitive ideas and language, which this cauſe communicated to men. Though we do not profeſs to adopt, without reſtriction, all the ideas of our excellent Author, yet we every where admire the dexterity and acuteneſs with which they are preſented in the progreſs of this diſcourſe. Many of the queſtions he treats in it, are difficult, if not indeterminable, in the preſent ſtate of human nature; but he has happily wreſted them out of the hands of the enemies of religion, who made uſe of them as objections, and expoſes the folly of judging *poſitively* concerning *a part*, when we have not ſeen its connections with the *whole*. M. De Luc ſettles boldly (and here we follow him with a dubious ſtep) the precincts of *revelation* and *reaſon*; he attributes to the former not only the ideas of a *firſt cauſe*, but alſo the origin of language, which gave riſe, as he thinks, to all the abſtract ideas of *origin*, *univerſe*, *beings*, *relations*, *duties*, *juſtice*, *truth*, and, in a word, to

all thoſe firſt *intellectual data*, which, by being mutually communicated, render men capable of generalizing ſtill farther their ideas, forming ſtill more extenſive combinations, and drawing from them conſequences both of a ſpeculative and practical nature. Theſe firſt *data* he finds in the Book of Geneſis; and there is no doubt, but that the *origin* and *firſt cauſe* of all things, made known by an expreſs declaration, muſt have accelerated the procedure of the intellectual faculties in the purſuit of truth, —and farther ſay we and know we not.

After having determined the ſpheres of revelation and reaſon, our Author examines and refutes the objections of certain philoſophers, as they are called, againſt the fundamental objects and truths of religion, ſuch as the doctrine of Providence (by which he means the *continual intervention* of the firſt cauſe in the government of the univerſe, and more eſpecially in thoſe extraordinary events which we call *miracles*) and the *activity* and *liberty* of man. He is acute and ardent on theſe important ſubjects, and draws great advantage from his profound knowledge of nature, and of the operation of ſecond cauſes, againſt the metaphyſical bulwarks that have been erected, with ſuch a ſubtile ſpirit of concatenation and arrangement, in favour of the *neceſſitarian ſyſtem*. The *philoſophical* ſyſtem of *pre-ordination*, or (as divines call it) predeſtination, that has been defended in ſuch a ſpecious and plauſible manner by *Leibnitz*, *Wolf*, *Bonnet* of Geneva, and other eminent men in Germany, and that has been aſſerted ſo boldly of late, and avowed, even in its moſt alarming conſequences, by Dr. *Prieſtley*, has met with a zealous and able antagoniſt in M. De Luc. As this part of his diſſertation would ſuffer by being abridged, we refer the Reader to the work itſelf, for the detail of his arguments. The *origin of evil* comes in for its part in theſe diſquiſitions: our Author's method of accounting for it, is rational and philoſophical in the higheſt degree; and it is indeed coincident with the method employed by his learned antagoniſts on the ſubject of liberty. M. De Luc does not abandon the ſyſtem of optimiſm, as inconſiſtent with the exiſtence of human liberty. This is a capital defect in many of our modern *peripatetics*, and it ſhews that their views of the ſubject are far from being philoſophical and extenſive. In effect, they leave all their objections againſt the moral government of the univerſe in their full force, and repreſent the Deity as conferring upon man a *dubious* gift, whoſe conſequences may be pernicious, and even fatal, without any previous proviſion made for turning them, in the iſſue, to ſalutary purpoſes. M. De Luc, one of the keeneſt defenders of human liberty, ſteers a different courſe, and has not ſhattered his veſſel (which is an admirable ſailer) either on the rocks of *Scylla* or *Charybdis*. In a word, this piece is excellent in every point of view, and will

pleaſe

pleaſe every candid reader: it will be read with pleaſure and utility even by thoſe who do not adopt the philoſophical ideas of our Author on ſeveral points, and it exhibits ſuch views of the preſent ſtate of human nature, of its future deſtination, and of the providence and perfections of its Author, as muſt fill the good mind with ſolid ſatisfaction and ſerene hope.

The concluding letter of this laſt volume is an affecting plea of good ſenſe and humanity in favour of religion, and deſerves to be read with attention by thoſe unthinking men, who poiſon the ſources of both private and publick felicity, by their repeated efforts to extinguiſh the light, the comforts, and the directions of that celeſtial guide in the minds of men. After conſidering the marks of ſimplicity and truth that are palpable in the ſpirit as well as in (what he calls) the *External Character* of the Moſaic revelation, he maintains the cauſe of religion in general, aſſerts the cauſe of toleration and charity, and inquires, with the ſpirit of a rational Chriſtian and a good man, into the ſources of the deviations and errors of men in theological reſearches.

At the end of the work there is a *general concluſion* drawn from the whole, in which we find two very different repreſentations of the *univerſe* and of *man*. Theſe are the reſults of the two different ſyſtems of *religion* and *irreligion*, conſidered in their greateſt oppoſition, and diſengaged from certain ſhades, and modifications, that, in the minds of many incoherent men, give them ſometimes an abſurd air of approximation. Theſe modifications could not be comprehended in the following *tablatures*, though they are frequently noticed and inſiſted upon in the courſe of the work. We ſhall give this concluding piece in the *form* and *words* (exactly tranſlated) of the Author: and our Readers may judge from this ſhort ſummary, who is the genuine friend of *truth* and *mankind*,—the Chriſtian, or the unbeliever?

The attentive ſtudy of Nature, ſeconded by the examination of thoſe NOTIONS that are *common* to all mankind, and the INTIMATE CONSCIOUSNESS or feeling of each individual,

PRONOUNCES,

I.

That the phyſical or material univerſe has not, in itſelf, the *cauſe* of its exiſtence: that it proceeds from a *firſt intelligent cauſe*, whoſe nature is diſtinct from

A certain kind of *philoſophy*, which decides concerning Nature without having ſtudied it, and combats the COMMON NOTIONS of mankind, as well as the INTIMATE CONSCIOUSNESS or FEELING of each individual,

PRONOUNCES,

I.

That the MATERIAL UNIVERSE has, in itſelf, the CAUSE of its exiſtence; that this cauſe is nothing but its aggregate, or the WHOLE, compoſed of its various

from that of the univerſe, in which every thing operates by its *primitive* and *continual intervention.*

2.

That the *end*, or final cauſe, of the UNIVERSE, is the happineſs of SENSIBLE * BEINGS.

3.

That the univerſe is preſerved and makes a perpetual progreſs towards perfection, in order to anſwer the purpoſe of the *firſt intelligent cauſe* with reſpect to *ſenſible beings.*

4.

That SENSIBLE BEINGS are diſtinct from the phyſical or MATERIAL UNIVERSE, though it exhibits the effects of their operations.

5.

That, in this univerſe, INTELLIGENT BEINGS, and MAN in particular, are the principal *end* of all the operations of the FIRST CAUSE.

6.

That MEN (*active* in their nature, and ardent inthe purſuit of *happineſs* every where) have been ſo formed and conſtituted by the firſt cauſe, that by *loving* each other, they contribute to their mutual *felicity.*

various parts, and that this CAUSE is BLIND.

2.

That this UNIVERSE has no end or purpoſe: and that the *ſenſible* beings, which reſide in it, are the effect of the BLIND WHOLE.

3.

That the univerſe is preſerved in conſequence of its WHOLE; that the concatenation of effects in it is unknown; that it may fall in pieces in a moment, and deſtroy all the ſenſible beings which inhabit it.

4.

That ſenſible and intelligent beings are a phenomenon, merely phyſical and material.

5.

That all things are phyſical or material; and that MAN, who is merely a material or phyſical phenomenon, was produced without any intention or end.

6.

That MEN have with each other no connection but that which takes place between the different parts of matter—that all is phyſical concatenation with them, and that they learn to contribute ſomewhat to each other's happineſs, only to avoid the ſufferings to which they would be otherwiſe expoſed.

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* By the term *ſenſible beings*, is here meant beings *ſuſceptible of happineſs and miſery.*

That

7.

That MEN ought to obey the laws, which have been clearly and explicitly given to them by the *firſt cauſe*, that each individual may not do, what his fancy looks upon as good in general, and principally ſo for him; and that explicit laws tend to produce the greateſt degree of happineſs among men.

8.

That the *ſanctions* of theſe laws are ſingularly adapted to keep each individual within the bounds that the well-being of humanity requires, as he is reſtrained and influenced by thoſe affections of love, fear and hope, which are excited in his heart by the idea of a wiſe and good legiſlator, from whoſe inſpection nothing is concealed.

9.

That if MEN are expoſed to ſome *evils*, without any fault on their part, this inſtance of their ſuffering is deſigned to promote a much greater general good; and they will be *perſonally* and amply indemnified for this ſuffering, in future ſcenes of their exiſtence:—which conſideration, even at preſent, diminiſhes their *evils* by the ſweet ſentiments of hope in the goodneſs, and of reſignation to the will, of the FIRST CAUSE.

FINAL CONSEQUENCE.

Thoſe, who are perſuaded of the preceding truths, after having enjoyed the comforts of their preſent exiſtence, as far as the imperfection of this ſtate will permit, meet *death* without regretting the enjoyments they leave

7.

That MEN are under no law, but that which reſults from their nature—that each individual feels this law, and conſequently ought to do and does, in effect, if he is not a dupe, whatever he thinks to be good in general, but principally what he eſteems good for himſelf.

8.

That MEN have nothing to hope, nor any thing to fear, beyond the preſent ſcene, and that therefore they do well to accumulate (what the vulgar and the civil laws call) *crimes*, if they can thus enjoy in peace and ſafety the pleaſures that are ſometimes connected with them.

9.

That MEN ſuffer by a neceſſary conſequence of the WHOLE or aggregate of the univerſe, and therefore without any hope of a future indemnification or recompence; nay, even without any aſſurance that their ſufferings tend to the advancement of the general good;—that, of conſequence, they have no reſource left, but to learn to ſubmit to their lot, as to a law of fatal neceſſity.

FINAL CONSEQUENCE.

They, who have unhappily imbibed the preceding errors, having lived without any certainty of obtaining the advantages they deſired, or any hope of compenſation for the ills they ſuffer, meet *death* with a ſorrowful

leave behind them, becauſe they have the certain hopes of infinitely ſuperior enjoyments and advantages in a future ſcene. Thus they finiſh their preparatory courſe with as much tranquillity as they have paſſed through it.

ſorrowful ſentiment of the loſs of their exiſtence. And if an act of reflection, in this moment of dejection, ſhould ſuggeſt to them an apprehenſion of their philoſophy's being an illuſion, it is poſſible that this late diſcovery may be no longer a ſource of conſolation for them. They finiſh therefore their preparatory courſe with as *much* anxiety, as they ſhewed *little* about true happineſs, while they were going on towards its term.

Oh! man (concludes our Author), this is thy greateſt concern . . examine . . . . chuſe . . canſt thou heſitate?

Art. II.

Nouveaux Memoirs de l'Academie des ſciences et Belles-Lettres de Berlin, année 1777,—4to, printed at Berlin.

History of the Academy.

THERE are ſeveral articles of conſequence in the *hiſtorical part* of this volume. The *conſiderations* of Baron Seidlitz, miniſter of ſtate to the King of Pruſſia, on *the public ſchools*, and the *poſſibility of rendering ſcholaſtic inſtruction more analogous to the duties and occupations of civil life*, are ſenſible and judicious.—— The *obſervations* made by the late M. *Lambert* at Berlin, and by M. *Pucelle*, King's counſellor at Mont-Didier, of a remarkable kind of *aurora borealis*, ſeen almoſt throughout Europe, February 26, 1777, are here combined by the ſecretary of the academy. But the moſt important article of this *firſt part*, is a Latin letter of Profeſſor Walter, one of the greateſt anatomiſts that any age or country has produced, to the celebrated Dr. Hunter, phyſician to the queen, F. R. S. and profeſſor of anatomy at London. The ſubject of this anatomical epiſtle is, the *veins of the eye in general*, and particularly the deep veins of that organ, thoſe of the retina, of the *ciliary ligament*, of the capſule of the lens, of the vitreous humour, and an account of the central artery of the retina. No anatomiſt, before M. Walter, had formed a juſt idea of this laſt artery: M. Walter attributes the cauſe of their imperfect ſucceſs to their having filled, with their injections, the arteries and the veins at the ſame time, and to the great facility with which the injected liquid paſſes from the arteries into the veins. He followed a different, but alſo a moſt difficult and expenſive method, which was that of injecting the veins

veins alone, in order to diſcover, with more accuracy, their direction and termination; and the diſcoveries he made by following this method render his letter to the Britiſh anatomiſt ſingularly intereſting.

This letter is followed by a *Memoir concerning the aëriform ſubſtance, which iſſues*, by emanation, *from the human body, as alſo concerning the manner of gathering it*. By the Count DE MILLY, colonel of dragoons, and member of the Royal Academy of Sciences at Paris.——After having ſhewn the very eaſy proceſs by which this ſubſtance may be gathered, this ingenious man of war enumerates the experiments which he made, in order to aſcertain the reality of theſe *emanations*. His experiments ſatisfactorily prove, that the *animal air*, which iſſued from his body in a bath (whoſe temperature was 27 degrees and a half of Reaumur's thermometer, and that of the atmoſphere 17) was different from the air of the atmoſphere, and has properties that give it a ſtriking reſemblance to what we call *fixed air*. Theſe experiments are followed by others which Count DE MILLY made, to aſcertain the affinities or relation of the animal air which iſſues from the pores, to that which is emitted by reſpiration. This determination of the reſpective natures and properties of animal *gas* and pulmonic air will undoubtedly tend to the explication of a multitude of phenomena, concerning which there has been a diverſity of opinions.——From theſe experiments we learn, among other things, that air emitted by reſpiration is a mixture of *fixed air* diffuſed through a large quantity of *common air*, by which the former is carried off, and the pernicious effects of its accumulation are prevented. This explains the principles of ſuffocation, and the danger of cloſe and crowded apartments, in which the introduction of common air being obſtructed, the emanations of *fixed air* gain the aſcendant.

The four laſt articles of this hiſtorical part, are SEGNER's *demonſtration of the general binomial theorem of Newton*.——A liſt of the MSS. or printed works, preſented to the academy in the year 1777—and the eulogies of Baron D' ESSCHEN and the celebrated chemiſt POTT, both late members of the academy, both eminent for their ſucceſsful application to the ſtudy of nature, and the former diſtinguiſhed by his capacity and talents as miniſter of ſtate to the Landgrave of Heſſe-Caſſel during the war of 1756.

EXPERIMENTAL PHILOSOPHY.

I. Memoir. *Concerning the Indian cheſnut tree.* By M. de FRANCHEVILLE. This tree is called *Hyppocaſtanum* by the Botaniſts, from the property it has of curing purſiveneſs in horſes: its fruit is bitter, and the intention of this memoir is to point out a method, hitherto unknown, of removing this bitterneſs, and making the tree produce as good cheſnuts as thoſe of Lyons.

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The means he propoſes are tranſplantion, and engrafting: and he circumſtantially deſcribes the manner of proceeding.

II. Memoir. *Concerning the Principles of the Tourmaline.* By M. GERHARD. In this excellent memoir we have, firſt, a ſeries of curious obſervations on the Natural Hiſtory of the Tourmaline, of which three diſtinct ſpecies are particularly deſcribed. Theſe obſervations are followed by a chemical examination of this ſtone, in which the academician has employed the green and tranſparent tourmalines of Braſil. From a laborious detail of experiments, made in this examination, it appears, that the conſtituent principles of the Tourmaline are, earth of allum,—earth of flint,—a ſmall portion of calcareous earth, and a fat or oily ſubſtance. M. GERHARD proceeds afterwards to enquire into the claſs of ſtones to which the Tourmaline belongs, and he thinks it comes neareſt to the *baſaltes*, both with reſpect to its figure, and the *principles* of which it is compoſed; the *latter* being of the ſame nature, and in the ſame proportions, with thoſe of the Baſaltes. Nevertheleſs, as the analogy between the principles of which *precious ſtones*, the *baſaltes*, the *tourmaline*, and the *zeolite*, are compoſed, is ſo great, our academician thinks, that the Mineralogiſts will be obliged to arrange theſe ſtones in a *new order*, under the general title of *ſtones fuſible, by way of eminence*. Under this new order four kinds may be comprehended —the *precious ſtone*—the *tourmaline*—the *baſaltes* or ſchorl—and the *zeolite*. The two firſt are diſtinguiſhed by their electrical virtues, with this difference, however, that the attractive power of the precious ſtone muſt be excited by friction, whereas the tourmaline, in order to become electrical, muſt be placed on hot aſhes, and poſſeſſes moreover a repellent virtue. The baſaltes is a fuſible, but not electrical, ſtone, and the zeolite is fuſible, ſometimes electrical, and emits a conſiderable portion of froth when it is in the period of fuſion.——Though want of ſpace obliges us to terminate here our account of this curious and elaborate memoir, we cannot conclude it without obſerving, that there are two phenomena, which furniſh ſeveral judicious reflections to our academician; the firſt is, that the *lava* contains the ſame principles that compoſe the tourmaline and the baſaltes, and the ſecond (which is ſtill more ſingular and remarkable) is, that the principles of *fuſible ſtones*, that have been ſeparated, and have afterwards been mixed again in the ſame proportions in which they had been found, do not ſubmit to fuſion, as the ſtones themſelves do.

III. Memoir. *Experiments, relative to the celerity, with which bodies of different forms or ſhapes are charged with the electrical fluid, and to the proportion that there is between the quantity they abſorb, and the diſtance they are at from an electriſied body.* By M. ACHARD.

IV. Memoir.

IV. Memoir. *Concerning the Obſervations of Wind.* By (the late) M. LAMBERT. V. Mem. *Concerning the Conductors deſigned to preſerve Buildings from the Effects of Thunder and Lightning.* By M. CASTILLON. VI. Mem. *New Experiments relative to the dangerous Effects, which the Exhalations of a North American Plant produce upon the human Body.* By M. GLEDITCH. The Plant here conſidered is the *Rhus Toxicodendron.* VII. Mem. *Concerning a very ſingular Caſe, of which there is no Example, as yet known, in the Practice of Midwifery.* By M. HENCKEL. This is the caſe of a young healthy woman, who, after having contracted, by unſkilful treatment in childbirth, a ſchirroſity that ſtraitened the *vagina* to a very great degree, became again pregnant. The ſymptoms were alarming, and the ordinary method of delivery impoſſible; the head of the child had deſcended behind the *vagina* as far down as the *perinæum*, and the *inteſtinum rectum* was ſo violently diſtended that it was ready to break. In this deplorable caſe, M. HENCKEL performed the *Cæſarean ſection* (i. e. the *operatio inferior*), and here deſcribes, circumſtantially, his manner of proceeding, with its ſucceſsful iſſue.

VIII. Memoir. *An Extract of the Meteorological Obſervations made at Berlin in the Year* 1777. By M. BEGUELIN. IX. Mem. *A particular Account of an* Aurora Borealis, *obſerved* on the 3d of December, 1777, at Berlin, and read to the Royal Academy of Sciences, &c. By M. SCHULZE.

MATHEMATICS.

I. Memoir. *Reſearches concerning the Determination of the Number of imaginary Roots in literal Equations.* By M. de la GRANGE. II. Mem. *Concerning ſome analytical Problems of Diophantes.* By the ſame. III. Mem. *General Remarks on the Motion of ſeveral Bodies, which attract each other reciprocally in an inverſe Ratio of the Squares of their Diſtances.* By the ſame. IV. Mem. *Reflexions on Regulation*,—in which the ſame Academician conſiders the Mechaniſm by which the Action of the Weight, or of the main Spring in a Watch, is regulated and modified by the Action of the Pendulum or of the Balance. V. Mem. *Emerſions of the two firſt Satellites of Jupiter obſerved in the Years* 1776 *and* 1777; *together with a new Eſſay on the Difference of the Meridians between Paris and Berlin.* By M. JOHN BERNOULLI. VI. Mem. *Aſtronomical Obſervations made in the Courſe of the Year* 1777, *at the Royal Obſervatory.* By M. SCHULZE. VII. Mem. *Concerning the Means of fixing or verifying the Poſition of an Obſervatory.* By the ſame. VIII. Mem. *An Application of the exponential Algorithm to the ſeeking of Factors of Numbers of the Form* $20 + i$. By M. BEGUELIN. IX. Mem. *A new and more compendious Method of finding Diviſors of Numbers of the*

the Form 4 *p* + 3 *and the firſt Numbers of that Form.* By the ſame.

SPECULATIVE PHILOSOPHY.

II. Memoir. *Concerning the Immortality of the Soul, conſidered on the Principles of Natural Philoſophy.* By the late M. SULZER. Theſe are the laſt productions of that excellent man, whoſe name will ſhine, with unfading luſtre, in the annals of *true* philoſophy, when thoſe of many tinſel ſophiſts, who make at preſent a mighty noiſe, ſhall be buried in oblivion. From the former Memoirs of M. SULZER on this important ſubject, ſome may perhaps have entertained a ſuſpicion that he was verging towards materialiſm; but this ſuſpicion is entirely groundleſs. M. SULZER told us poſitively, in his firſt Memoir, and he repeats the advertiſement in thoſe now before us, that he ſpeaks here as a natural philoſopher, and only means to exhibit the arguments, which ought to convince even a materialiſt of the immortality of his being. 'If, *ſays he*, in the execution of this plan I ſpeak the language of a materialiſt, it muſt not be concluded from hence, that I adopt his ideas, which I look upon as entirely falſe. I am ſo far from embracing the opinion of the Materialiſts, that I would rather deny the *corporeal* eſſence of matter, than attribute materiality to the ſoul. I will even go ſo far as to affirm, without any ſort of heſitation, that we have much more reaſon to be perſuaded of the *immateriality* and *ſimplicity* of thinking beings, than of the materiality of the elements of bodies. In effect, we have the teſtimony of *conſciouſneſs*, of internal feeling in favour of the ſimplicity of our being, while we have nothing to allege in favour of the materialiſm of corporeal elements, but inductions, founded on the external ſenſes; and this latter teſtimony is ſo uncertain, with reſpect to the *true* nature of ſenſible and external objects, that it is aſtoniſhing to ſee philoſophers eſtabliſhing their ſyſtems upon proofs of this kind.' This ſurely is very plain and categorical language, every way adapted to *ſecure* the name of M. SULZER againſt a place in the claſs of materialiſts.

This celebrated academician had ſhewn, in his preceding Memoirs (of which our Readers have had ample extracts *), that the *animated molecule* (the epithet he gives to the ſoul, conſidered *phyſically*) when ſeparated from the groſs body, by the diſſolution of the *latter*, does not remain confounded or blended with the general maſs of matter, but follows the *particular laws* of the ſubſtances of its own kind, in order to arrive at the place for which it is deſtined. In the preſent Memoirs he undertakes to prove, that a ſimilar procedure takes place with reſpect to the *firſt germs of plants and animals*, organiſed *mo-*

* See Rev. vol. lviii. p. 521, and vol. lx. p. 520.

lecules of a particular kind: theſe are diffuſed and diſperſed everywhere;—they arrive at the place of their deſtination, and conſequently our Author attributes nothing to the *animated molecule* that is not *analogous* to what really and evidently takes place in nature.—M. SULZER obſerves farther, that the *ſoul*, after its ſeparation from the body, which it had animated, will be *united to a new body*, by the means of which, it will *recover its knowledge* of the material world, and begin a *new life*.

The arguments by which he maintains this latter point, are in ſubſtance as follows:—ſince the ſmalleſt molecule of elementary bodies undergoes, as is well known, a prodigious variety of ſucceſſive modifications, and has a ſeries of *innumerable parts* to *act* in nature, much more muſt the *ſoul*, a molecule infinitely more noble, and endowed with powers infinitely more extenſive, be deſigned to act a perpetual ſucceſſion of parts in the univerſe: conſequently, after this preſent life, it will be placed on another theatre, to continue its activity, and diſplay its faculties and powers under new modifications. This ſuppoſition is entirely conformable to the wiſdom of the arrangements which we obſerve in this preſent world. But the ſoul muſt be united to a new body, in order to reſume its activity. Granting this true, and indeed it appears to be ſo, —where is the difficulty? There is none at all in the caſe. If human ſouls (as ſo many circumſtances conſpire to perſuade us) are deſigned to appear upon another theatre after their departure from this, the ſame cauſe that united them here to mortal bodies, can procure them bodies ſuited to the new life they are to commence; though we can form no accurate idea of the means by which this ſhall be effectuated. There are many palpable facts in nature, analogous to this re-union, which furniſh light, ſufficient at leaſt, to diſpel all our doubts on this head.—If it be true (as we think M. Sulzer has abundantly proved it to be), that the ſoul is not a modification or a *reſult* of the groſs animal body, but a ſubſtance independent of this body with reſpect to its exiſtence, there muſt be in nature *certain laws* by or according to which the union of theſe two ſubſtances is effectuated, unleſs we ſuppoſe perpetual miracles, which is an unphiloſophical manner of proceeding: now, if certain laws exiſt for the firſt union of the ſoul with the animal body, why ſhould we doubt of the exiſtence of laws analogous to theſe, by which the ſoul, on its ſeparation from the preſent body may be united to another? Nor is this the only analogy that comes in here to perſuade us of the exiſtence of ſuch laws: we find another in the natural union of the *germ*, in organized bodies, with the matter of which theſe bodies are formed. Our Author had before proved that theſe *germs* are pre-exiſtent, and really precede the formation of the bodies to which they are united; that they

are diffuſed throughout the globe; and that, by eſtabliſhed laws, they find their way to the places, where they are to be united to their reſpective bodies, to the matter deſtined for the formation of plants and animals. As this caſe is perfectly analogous to that of the natural re-union of the ſoul or animated molecule with an organized body, it is evident, that, in ſuppoſing ſuch a re-union after death, we ſuppoſe nothing but what is conformable to the known courſe of nature, and therefore, at leaſt, highly probable.

III. Memoir. ADDITION to the *Memoir of* M. SULZER *concerning certain Properties of Matter* (which was deſigned as an Examination of the Syſtem of Materialiſm), *inſerted in the New Memoirs* (of the Academy at Berlin) *for the Year* 1771.—In this ſhort Supplement the ingenious academician proves that the motions of animals are ſpontaneous,—of which we never had the leaſt doubt.

IV. Memoir. *An Examination of the Queſtion*; whether ALL TRUTHS are fit to be TOLD? By M. FORMEY. Is there any difficulty in the ſolution of this queſtion? Is it not natural to anſwer it directly in the affirmative?—For, although a certain degree of *light* may be painful, or dazzling to *weak eyes*, yet it is good, in general, that light ſhould prevail and abound. Men whoſe eyes are too weak, have only to ſhut them, or uſe the means that may tend to render them ſtronger. The application of this idea to *truth*, and the *mind*, is in favour of the affirmative ſide of the queſtion; for it is the natural property of truth to ſtrengthen the mind.—To render then the queſtion more or leſs problematical, it ought to have been propoſed under one of the following forms: *Are all* OPINIONS *fit to be publiſhed?* or,—*Is it expedient that every individual ſhould propagate and defend what* HE LOOKS UPON *as truth?* When the queſtion is thus propoſed, we ought, perhaps, to draw in our affirmative. Every *real truth* is fit to be told, but every *opinion* that is engendered in the fermentation of a ſuperficial head, with an irregular fancy, may not be fit to be told, however plauſible it may be rendered by a tinſel clothing of metaphyſical ſophiſtry. One of the beſt *criteria* that can be given to diſtinguiſh both *truth* from *falſehood* and *innocent* opinions from *pernicious* ones, is that laid down by the Model of true wiſdom, when teaching his diſciples to diſcern the falſe and the true prophets he ſaid; *By their fruits ye ſhall know them.*—M. FORMEY certainly propoſed the queſtion in the ſenſe it bears, as we have amended it; and he treats it in a maſterly manner. Candour, good intention, and good ſenſe characteriſe this Memoir; and had he even committed a *multitude of* philoſophical *ſins* in the courſe of his academical labours, we would *cover* the greateſt part of them, if not the whole, with the piece now before us.—

After having judiciouſly diſcuſſed the queſtion propoſed, as far as it relates to thoſe truths which belong to the provinces of the abſtract ſciences, natural philoſophy, natural hiſtory, and the arts, our Academician conſiders it with reſpect to thoſe truths (we would rather ſay *opinions)* in which religion, morals, and political ſociety are concerned. He ſuppoſes, that a *thinker*, travelling through the vaſt region of inquiry, finds in his way, *aſſertions* in the taſte of *Hobbes*, *Spinoza*, *Machiavel*, and the author of the *Syſtem of Nature*, and that he looks upon theſe aſſertions as true, neceſſary to mankind, and adapted to deliver enſlaved mortals from the yoke of ſuperſtition, &c. &c. M. FORMEY addreſſes himſelf to this *Thinker* pretty much in the following manner:—'If you love your fellow-creatures, and have their well-being at heart, how can you ſo groſsly miſunderſtand their true intereſts as to imagine that either particular perſons or public ſocieties will receive any advantage from the knowledge of theſe pretended truths? Do you not perceive, on the contrary, that they undermine the foundations of all ſocial comfort and ſecurity, break the tendereſt and moſt reſpectable bonds of union, extinguiſh the moſt amiable affections, and thus blaſt all the permanent advantages, and rational pleaſures of human life? What muſt mankind become, when, delivered from, what *you* call, their ſervitude, they acknowledge no inviſible ſuperior, no moral law, and neither hope nor fear any thing beyond a preſent life? We have often aſked theſe pretended ſages, who ſap the foundations of religious principle and moral virtue, who labour to extinguiſh thoſe delightful hopes that are the conſolation and ſupport of humanity under the trials of this its firſt and infant ſtate, we have often aſked them, I ſay, what they mean? what is their purpoſe? what advantages and comforts do they offer to mankind, in exchange for the bleſſings and proſpects of which they labour to deprive them? and we have never once heard of a ſatisfactory anſwer to theſe important queſtions.—Cruel philoſopher,—you take away my taper,—and in its place you give me nothing but thick darkneſs!—my habitation is, indeed, but a lowly hut,—yet why beat it down about my ears, only to expoſe me to the inclemency of the weather, without any ſhelter or covering? You repreſent this life as a ſcene of miſery;—and you take from me, at the ſame time, the pleaſing expectation of a better. You diſſolve all domeſtic obligations, all civil ſubordination, and when your licentious principles engage me to rebel againſt the ſovereign who protects and defends me, your vaunted liberty * offers me no privilege but that of hiding myſelf in the woods, and wandering in the deſerts.'

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* This regards the ideas of J. J. Rouſſeau.

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From theſe, and other conſiderations, equally judicious and concluſive, our Academician ſhews the ſophiſts and ſceptics of our day, that if they love mankind, and wiſh to promote their well-being, they ſhew their love and zeal in a ſtrange manner, ſince it is impoſſible to make their fellow creature a more pernicious preſent, even with reſpect to their happineſs in this world, than the inſtructions of atheiſm and infidelity.

But what do you mean (ſays our Academician, to render the dilemma complete) when you tell us that you love mankind; pity their miſery; and are deſirous of inſtructing them in matters that concern them eſſentially? Such language in *your* mouths is the moſt ſenſeleſs jargon that can well be imagined. What is man, whom you are ſo much concerned about in *your* ſyſtem, and in *your* eſtimate of human nature? He is a muſhroom—the inſect of a fleeting moment—who ſprung from nothing, and is returning to nothing. The aſſociations of men, their plans and ſettlements, are ſimilar to what paſſes on an ant-hill, and their pleaſures, pains, hopes and fears, are no more than modifications of a tranſitory *dream*, which is called *Life*.—Why then do you trouble their *dream*, with your dejecting ſophiſtry, when you have nothing *real* to give them in its place? Leave them peaceably in the ſtate in which they are, if it be leſs unſupportable than that which you preſent to them. When the galley-ſlave gets into a temporary ſlumber, in which fancy places him at a delicious repaſt, is it not an act of cruelty to interrupt his dream, and to awaken him from the pleaſing deluſion? he will ſoon enough return to the ſight of his galley, and the labours of his oar.—To Beings who are born to die, and whoſe life is ſo ſhort and mixed as ours is, no ſuch eſſential ſervice can be done, as to encourage them in their paſſage through human life with the hopes of immortality, and to animate them to duty by the proſpect of a future ſtate of retribution and reward: and he that opens the abyſs of anihilation to morta's in this ſtate of labour and trial, ought rather to be conſidered as the deadly enemy, than as the gracious benefactor of the human ſpecies.—We recommend to our Readers M. de Luc's excellent Diſcourſe on this ſubject, in the firſt volume of *Letters Philoſophical and Moral, &c.*

M. Formey obſerves, that the perſons, who aſſume the character of *thinkers*, and conſider themſelves as capable of inveſtigating truth, form two diſtinct claſſes. One claſs is compoſed of thoſe who ſay, *We have diſcovered new truths, and we mean to publiſh them.*—The other claſs is compoſed of the heads and rulers of the community, who anſwer, *Ye have only invented errors, and we prohibit their propagation.* The former raiſe, on this, a great outcry, and ſay,—*We groan under the yoke of oppreſſion, and, inſtead of argument, authority and power*

are employed. —Our Author ſteps in between the two parties, and by conciliatory ways and means endeavours to check the ſpirit of *tyranny* and *perſecution* in the one, and of *rebellion* and *inſolence* in the other. What he ſays to the *thinkers* comes, eſſentially, to this: 'Gentlemen, authority and power cannot render a bad argument good, nor can they render a good argument bad: yet what is there in *authority* and *power*, that ſhould hinder *truth* and *juſtice* from being on their ſide? The rulers of the people *have* the privilege, and *may have* the capacity of *thinking*, as well as you;—and *they* are eſpecially intruſted with the peace and happineſs of the community, which is not *your* caſe. It is therefore very ſingular, that, if certain opinions may endanger or promote the well-being of their ſubjects they who are intruſted with that well-being, and clothed with authority to maintain it, ſhould be deemed incompetent judges of ſuch opinions, and that you, who have no ſuch charge and no ſuch authority, ſhould decide and act in ſuch a weighty matter, without any reſtraint In matters of a civil and temporal kind, that perſon, who maintains himſelf proviſionally in his profeſſions, until a deciſive, peremptory, and concluſive ſentence is pronounced againſt him, is allowed to act juſtly:—tranſport this method of reaſoning to the great conteſt between *religion* and *irreligion*, which is likely to continue always depending, and ſee what will be the concluſion! Why ſhould they, who maintain the cauſe of religion, who are perſuaded of its happy influence on manners and on public felicity, and have eſtabliſhed it as one of the principal ſupports of legiſlation, and as preventing a multitude of evils, to which the influence of human laws cannot extend, why, I ſay, ſhould they permit your invaſions and outrages; and that, when the goodneſs of your cauſe is, to ſpeak in the mildeſt terms, far from being aſcertained? If, oppoſing a religion, which is profeſſedly *founded on argument*, and is only *ſupported* by authority, you aim at the eſtabliſhment of a civil government which renounces the protection of a Supreme Being, and rejects the ſuccours of religion; you have only to withdraw to other regions and other climates, where you may found ſtates, and govern them according to your fancy: but you muſt not think yourſelves authorized to diſturb ſyſtems of government actually eſtabliſhed, by propagating principles which evidently tend to their ſubverſion. You have not, on your ſide, the voice of the people, which, alone, could give you a ſpecious pretext to unhinge the conſtitution under whoſe protection you were born, whoſe advantages you have enjoyed, and to whoſe laws (of conſequence) you are obliged to ſubmit. You ſay, your doctrines are *truths*: —your rulers ſay, they are *errors*:—who ſhall judge? The people, in general, whatever may be their rights, will not judge

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for themſelves, and ſince they will be led, it ſeems much more rational, and more conducive to the public good, that they ſhould be led by their rulers, than by every innovator who uſurps the name of a philoſopher.'

We have here given the ſubſtance of M. FORMEY's reaſoning: thoſe who deſire a more ample illuſtration of his principles, will be ſatisfied by recurring to the original paper, which, it is poſſible, may be publiſhed ſeparately, as hath been the caſe with many of his academical pieces.—We ſhall only tranſcribe the obſervation which concludes the preſent Memoir: it is as follows: 'The grand ſecret of legiſlation, and the baſis of all good government, conſiſts in maintaining with *one hand*, a pure and plain ſyſtem of religion, adapted to form men to the practice of every virtue, and to confirm them in the obſervance of every duty,—and to cruſh, with *the other hand*, ſuperſtition, fanaticiſm, and infidelity, when they attempt to DOGMATISE.'—But, under the pretence of this *cruſhing*, what miſchief has not been done to mankind! What have they not ſuffered from the horrors of perſecution!

V. Memoir. *Concerning the Problem of Molyneux*; the VIth Memoir. By M. MERIAN. We have formerly * ſeen how differently this famous Problem has been ſolved by different perſons, and what reſpectable names are found on the oppoſite ſides of the queſtion. *Molyneux* and *Locke* maintained, that the man born blind, however accuſtomed to handle the *globe* and the *cube*, during his ſtate of blindneſs, would not be capable of pronouncing, by *mere* inſpection, when he recovered his ſight, which of the two objects was the globe, and which the cube. Biſhop *Berkley* came to the ſame concluſion, but he arrived at it by a different road from that in which the two great men already mentioned had proceeded. Our Academician looks upon the principles on which Berkley founded his ſolution, as much more ſolid and philoſophical than thoſe of Locke and Molyneux. If he affirmed, like them, that the man born blind would not be able to diſtinguiſh the globe from the cube by his ſight when he had recovered it, he did it upon this principle, that the ſenſes of *ſight* and *touch* have nothing in common, and that there is no point of reſemblance in the ſenſations they produce. The illuſtration and proof of this theory form the ſubject of the preſent Memoir.

VI. Memoir. *Concerning different bodily Conſtitutions, and their different Effects.* VII. Mem. *Concerning the Influence of natural Cauſes upan the Conſtitution.* By DOM. PERNETY.—There is nothing either new or uncommon in theſe two Memoirs, which contain, nevertheleſs, a judicious compilation of

* See Rev. vol. lviii. p. 530.

what has been hitherto publiſhed on the ſubject. Hippocrates, the author of the *Philoſophy of Nature*, and the author of a book, entitled, *Of Man and Woman, conſidered phyſically, in the State of Marriage*, are the principal ſources, from whence our Academician has drawn his materials.

VIII. Memoir. *Concerning a Metaphyſical Problem.* By M. CASTILLON. This Problem was propoſed to M. de Caſtillon by one of the moſt celebrated Members of the Academy of Berlin, and it is expreſſed in the following terms: "Either the "number of ideas in the Divine Mind is *finite* or *not*:—if it is "not finite, then there exiſts actually an infinite number of "ideas, which is a contradiction: if it is finite, then there is "an infinity of ideas, or ſources of knowledge, of which the "Deity is not poſſeſſed:—For example; if we calculate the "motions of any given number of bodies, we can always "add to that number, even without end; conſequently "beſides the number of bodies of which the ideas exiſt "in the Divine Mind, there will be, on the ſuppoſition, "an infinity of other ſyſtems which the Deity does not per-"ceive."——We have met with many proofs of M. CASTILLON's profound knowledge in metaphyſics, natural philoſophy, and mathematics; but in his condeſcending to ſolve the flimſy problem now mentioned, we have a ſignal mark of his complaiſance and meekneſs: this paltry problem, however, which ſolves itſelf, has given the candid and learned Academician an opportunity of regaling the lovers of metaphyſical diſcuſſion with ſeveral judicious obſervations relative to the knowledge of the Divine Mind.

BELLES LETTRES.

I. Memoir. *Conſiderations on Homer.* By M. BITAUBÉ. Theſe Conſiderations will add little or nothing to the ſtock of knowledge which our claſſical Readers muſt have already acquired with reſpect to the Grecian Bard. Much noiſe has been made in the controverſy about *Homer*'s learning, which ſome have exalted beyond meaſure, while others have gone into the oppoſite extreme. M. BITAUBÉ, in our opinion, treats this part of his ſubject with judgment, intelligence, and the erudition that was neceſſary to throw light on the matter. It is certainly in modern times only, that a proper eſtimate has been made of the learning of Homer. From the Platonics, who in their philoſophical ſuperſtition reſpected the fables of antiquity as the receptacles of myſterious Wiſdom, down to Mr. Pope, whoſe excellent judgment did not exempt him from all exaggeration here, the learning of the immortal Bard was too high rated. Modern critics, ſays M. BITAUBÉ, have contributed much to put him in his true place, and have ſhewn, that the art he poſſeſſed the moſt, was that of ſtriking the imagination, and touching the heart. Nevertheleſs, it muſt be acknowledged,

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obſerves our Academician, that Homer was one of the moſt learned men of *his age*; which may be true, without ſaying much for his erudition. It is certain that his Iliad and Odyſſey have tranſmitted to us all that we know of the ſtate of the arts, morals, legiſlation, &c. among the Greeks at that early period.

II. Memoir. *Concerning the Patriarch Photius.* By M. WEGUELIN. III. Memoir. *A Diſſertation concerning the Electoral Septemvirate.* By M. de FRANCHEVILLE. This Diſſertation, divided into Three Memoirs, is deſigned to prove, that the inſtitution of the ſeven ancient Electors of the Empire was owing, not to Otho III. as hath been ſuppoſed, but to Otho IV.; who ſettled this buſineſs in the year 1208, at the diet of Frankfort.——Be it ſo.

ART. III.

Nouveaux Memoirs de l'Academie des Sciences et Belles Lettres de Berlin. Année 1778. 4to. Printed at Berlin.

HISTORY OF THE ACADEMY.

THIS volume begins with the Eulogy of *Voltaire*; of which we gave an account in a former Review *, with the reſpect that was due to its royal Author, and the freedom which is an inviolable privilege in the republic of letters. The other articles, worthy of notice in the hiſtorical part of this volume, are as follows:—*Obſervation of a total Eclipſe of the Sun, made June 24th*, 1778. By Don ANTONIO d'ULLOA.—*A Deſcription of the* Uranometer, an Inſtrument, newly invented, which produces an Effect equal to that of a quadrant of a radius of ſixty foot. By M. SILBERSCHLAG. The conſtruction of this curious inſtrument would be ſcarcely intelligible, without the plates, which the Author has here ſubjoined to his deſcription of it. To theſe he has added the ſolutions of ſome important problems, to ſhew with what facility and accuracy the moſt difficult aſtronomical operations may be performed by means of this inſtrument.—*Obſervation of a particular Variation of the Barometer.* By M. TOALDO, Profeſſor of Aſtronomy at Padua.—Natural philoſophers are generally agreed, that the action of the moon produces, in our atmoſphere, tides analogous to thoſe of the ocean, but have denied that the effect of ſuch an alteration in the weight of the air, as theſe tides muſt occaſion, can be obſerved in the barometer. Of this number is the celebrated Abbé *Friſi*, as appears by his learned Treatiſes *de Gravitate et de Coſmographia.* The acute Philoſopher who now addreſſes us, having calculated this alteration of the weight of the air, and having found it equivalent to $\frac{1}{105}$ of a line in the barometer when produced by the action of the ſun, and to $\frac{1}{48}$ when produced by that of the moon, concluded that this vari-

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* Vid. Rev. Vol. lx. p. 67 and 144.

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ation was too ſmall for obſervation. M. TOALDO has not been diſcouraged by this deciſion of his learned friend; and the important ſeries of barometrical obſervations, and reaſonings founded on them, which is contained in this Memoir, ſhews that the barometer indicates the alteration in queſtion.

Obſervations on the Bobak of Poland, and a Hiſtory of this Quadrupede, ſent to the Academy. By M J. B. DUBOIS, Counſellor to his Poliſh Majeſty. M du BUFFON claſſes this animal (whoſe kind abounds in the Ukraine) with the Marmottes; our Academician, better informed, thinks that it comes nearer to the claſs of rabbits. His deſcription of the animal is circumſtantial and curious. We ſhall only mention the following particularities: it often happens that three or four of the habitations of the *Bobaks* are comprehended within the ſpace of a ſquare fathom: their holes are deep and perpendicular: each is occupied only by a male and female: but it frequently happens that nine or ten couples fix their dwellings near each other, and form a kind of republic. Sometimes this neighbourhood is a model of union and concord;—this is, however, but rare; for it is much more frequently the centre of diſturbances, civil commotions, and bloody wars (juſt as it is among us): there are remarkable diverſities of character among theſe animals, which deſtroy that natural equality that might be expected among uncivilized beings. Some are active,—ſome negligent,—ſome ambitious;—but thoſe who diſcover lazineſs in the ſeaſon of labour, are loaded with ſevere taſks, and diſtinguiſhed by public marks of ignominy; they are treated like ſlaves: they are laid upon their backs; loads of herbs, plants, and proviſions are placed on their bellies, which they hold faſt with their paws; and thus they are drawn by the tail, to holes, where their burthens are to be unloaded. *(Would it were ſo among us!)* The Bobaks never go out of their holes, either to amuſe themſelves or to ſeek for proviſions, without placing a ſentry on an eminence or hillock, to warn them of the approach of danger. This ſentinel, when he ſees any one coming, raiſes himſelf on his hinder-feet, and whiſtles; on which ſignal all the ſtragglers ſave themſelves in their holes, and remain there till the danger is paſt.

After having given a liſt of the *Printed Works*, *Manuſcripts*, *Machines*, *and Inventions*, that were preſented to the Academy during the courſe of the year 1778; M. FORMEY concludes the hiſtorical part of this volume by a curious Eulogy on M. JOHN HENRY LAMBERT, a Stay-maker's ſon, born at Malhauſen, in the Upper-Alſatia, 1728; who, notwithſtanding the defects of a poor education, his being bred to his father's trade, his unpleaſing perſon, his rough and ungracious manners, and almoſt every thing inelegant and diſagreeable in his external appearance, roſe to the honourable rank of Academician, and

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was, indeed, one of the moſt able members of the Berlin Academy, in the mathematical line.

EXPERIMENTAL PHILOSOPHY.

I. Memoir. *Experiments made on a Kind of Earth, which remains in the laſt* Lixivium *of common Salt, or on the Baſis of bitter Salt, ſo far as is relative to the Property it has to render other Earths fuſible.* By M. MARGRAFF.

II. Memoir. *Concerning the Dephlogiſtication of phlogiſticated Air.* By M. ACHARD *Firſt Memoir.*—It is well known, that the elementary air (by which is meant the air of the atmoſphere, diſengaged from all the heterogeneous particles that it contains) is capable of uniting itſelf with different ſubſtances, diſſolves, with facility, the phlogiſton, with which it has a great affinity, and from its union with which it becomes what we call phlogiſticated air. The phlogiſton, according to our Academician, having ſuch an affinity with the air, is always more or leſs charged or impregnated with it; and the dephlogiſtication of the air is an important object of the inquiries of the Naturaliſt, as dephlogiſticated air is of all others the moſt proper for reſpiration, and its mixture with the air that has been corrupted by animal breath, or other cauſes, removes the noxious qualities of ſuch air, and reſtores its ſalubrity. On the other hand, the production of dephlogiſticated air, which is directly drawn from bodies, is ſubject to many difficulties, and becomes expenſive by the ſmall portions of it that are attainable. Theſe conſiderations induced M. ACHARD to make a great number of experiments in order to ſeparate the phlogiſton from the air which is charged with it: many proved unſucceſsful; but he obtained his purpoſe at length, by the detonation of nitre, or, in other words, by the detonation of phlogiſticated air tranſmitted through melted nitre, with the nitrous acid. Theſe experiments, which he made ſucceſſively with phlogiſticated, fixed, corrupted, and inflammable air, verified his conjectures; they ſhew, that the affinity of the phlogiſton with the nitrous acid, warmed to a degree which makes the nitre boil, is greater than its affinity with the air, from which it (the nitrous acid) diſengages the phlogiſton: and this circumſtance is every way adapted to furniſh new ideas with reſpect to the compoſition of different kinds of air

Among ſeveral other principles and facts, that reſult from the experiments and obſervations contained in this Memoir, we ſhall enumerate the following:—all bodies, ſuſceptible of evaporation, by degrees of heat, natural or artificial, combine with and diſſolve in air. When the heat, neceſſary to unite air with certain bodies, ceaſes, the air ſeparates itſelf only from a part of the ſubſtance, which it has diſſolved, and always retains a certain quantity of it, which is ſmall in proportion to the degree of the diminution of the heat. Inflammable air is not decompounded,

like

like nitrous air, by the addition of a kind of air, which, not being faturated with the phlogiſton, may ſtill admit a farther portion of it, becauſe the affinity of the phlogiſton with inflammable air, and its acid, ſurpaſſes that of the phlogiſton with elementary air.—Therefore dephlogiſticated air, which receives the phlogiſton with the utmoſt facility, does not diminiſh the volume of inflammable air, and augments its inflammability, inſtead of leſſening it.

In a following Memoir M. ACHARD intends to communicate ſeveral remarks on dephlogiſticated air, with various experiments tending to indicate more clearly its nature, and to render its application uſeful. He propoſes alſo to anſwer ſome objections that may be made to his experiments, and more particularly, one, that at firſt ſight appears plauſible; he means the objection of thoſe who may attribute the change of the air, which he tranſmitted through melted nitre, not to the decompoſition of that air, but to its mixture with the dephlogiſticated air, which eſcapes from the nitre, while it is in fuſion.

III. Memoir. *Concerning the Manner of calming the Agitation of a Part of the Surface of a Fluid, either by the Affuſion of a Fluid ſpecifically lighter, and of ſuch a Nature as not to mix with the agitated Fluid, or by applying to the Surface of this latter Fluid a ſolid Body of leſs ſpecific gravity.* By the ſame. The firſt object that employs M. Achard in this Memoir, is to aſcertain the fact, that oil has the property of calming or diminiſhing the agitation of the ſea. The experiments he made for this purpoſe aſcertain the fact, ſo far as to prove that the *force*, which produces the undulatory motion, continuing the ſame, that motion will be leſs when oil is poured upon the water, than when it is not. But our Academician thinks, that the obſervations and accounts of the mariners, relative to this fact, are chargeable with exaggeration. It appears incredible to him, that ſuch ſmall quantities of oil, as they ſometimes mention, ſhould produce any palpable effect on a ſurface ſo conſiderable, as that part of the ſea which ſurrounds a ſhip: and even ſuppoſing (adds he) that this was poſſible, for a moment, yet it muſt be conſidered, that, as the motion of the ſhip is not exactly ſimilar and correſpondent to that of the water, the oil muſt be quickly carried to a conſiderable diſtance, and conſequently become incapable of producing any continued effect on the water, which is contiguous to the ſhip.—So much for the fact. The cauſe, that operates in its production, is the next object of the experiments and obſervations of our ingenious Academician. Two experiments, circumſtantially related here, have convinced him, that oil does not produce the effect under conſideration by its *fluidity*, but by its *quality*, as a body ſpecifically lighter than water. From hence he concludes, that bodies lighter than water, and of a larger ſurface or extent than that which is formed by the drops

of oil that are poured into the ſea, muſt produce the ſame effect in a much higher degree. In applying therefore the reſult of his obſervations and experiments to the benefit of navigation, both in the ocean, and on the great rivers, our Author propoſes to ſubſtitute, in place of oil, barrels full of air, into which the water cannot enter, or rather ſquare tin boxes of eight foot in ſurface, and one or two in height, filled with air, and impenetrable by water. Ships may be provided, without any great difficulty with ſome dozens of ſuch boxes faſtened to cords, ſo that they may be let down into the water, when its agitation is ſuch as to excite apprehenſion. M. ACHARD has tried this method by experiments in *miniature* (if we may uſe that expreſſion) and with ſuch ſucceſs, that he ventures to recommend it as adapted to diminiſh the dangers of navigation,—and it may not perhaps be unworthy of the maritime powers to try the experiment *in full length*.

IV. Memoir. *Containing Experiments on the Weight, Elaſticity, and Compreſſibility of different Sorts of Air, as alſo concerning the different Degrees of Facility with which Plants germinate reſpectively in them.* By the ſame. After celebrating the important diſcoveries of Dr. *Prieſtley*, which have enabled chymiſts and natural philoſophers to explain a great number of phenomena unaccounted for before him, M. ACHARD avails himſelf of theſe diſcoveries to make ſome ſteps farther in the inveſtigation of nature. The fixed, the inflammable, the nitrous, the phlogiſticated, and dephlogiſticated, are the five different kinds of air, whoſe weight, elaſticity, and compreſſibility, are eſtimated in this Memoir. Our Academician propoſes to himſelf however the following previous queſtion, whoſe ſolution he conſiders as of no ſmall importance; *viz.* Whether the air *is* in bodies *ſuch* as we find it when extracted from them, or whether its properties do not proceed from the union it contracts with other ſubſtances to which it is united by the very operation which diſengages it from the bodies in which it reſided? From the experiments * that M. ACHARD made, in order to reſolve this queſtion, it appears to him evident, that fixed air, *alone*, exiſts in the bodies from whence it is diſengaged, *ſuch* as it *is* when we extract it from them, and that its acidity does not proceed from the union it contracts wtth an acid at the moment it eſcapes and reſumes its elaſticity, but from its previous combination with an acid in the very ſubſtance from which it was drawn. But this is not the caſe with air in general, as we ſhall ſee preſently.

From the experiments (here deſcribed) which M. ACHARD made, in order to determine the *weight* of the air, drawn from

* Theſe Experiments are not deſcribed in this Memoir.

different

different bodies, it appears, 1ſt, That fixed air is, in general, heavier than common air; but that its weight is very different according to the proceſs employed in diſengaging it, and the bodies from whence it is drawn. 2dly, That inflammable air is lighter than common air, if we except that which is drawn from vegetables by fire. 3dly, That inflammable air, diſengaged from the ſame metal by different acids, varies in weight; that which is drawn from zinc by the marine acid having only one half of the weight of that which is drawn from the ſame metal by the phoſphoric acid. 4thly, That the weight of common air is to the weight of dephlogiſticated air, drawn from nitre by heat, as 1 to $\frac{835}{1000}$. 5thly, That nitrous air is lighter than common air *. 6thly, That air charged with phlogiſton, either by the bodies that have been burnt in it, or by the reſpiration of animals, weighs leſs than common air. 7thly, That, in general, the air in bodies is not of the ſame quality, as it is when extracted from them, but, in the act of ſeparation is combined either with the volatile parts of theſe bodies, or with the ſubſtances which are employed in extracting it from them. As to the experiments of our Academician on the compreſſibility of different kinds of air, and their dilatability by heat, they yield the following reſults: 1ſt, That, after the compreſſion has ceaſed, the air, of whatever kind it may be, occupies the ſame volume which it occupied before it was compreſſed. 2dly, That the lighter the air is, the leſs is it compreſſible (the compreſſing power remaining the ſame), and the leſs alſo is it ſuſceptible of dilatation by the ſame degree of heat.

Memoir. *Concerning a new Manner of hatching Eggs by means of Electricity.* By M. ACHARD. Thirty-two degrees of heat form, according to M. Reaumur, the temperature neceſſary to the artificial hatching of hen-eggs. After many unſucceſsful attempts to find out the point of electricity which produces effects ſimilar to thoſe of a heat of 32 degrees, M. ACHARD betook himſelf to an expedient, worthy of his ſagacity and genius, and which fully anſwered his purpoſe. By a curious experiment, circumſtantially deſcribed in this Memoir, he found out the degree of electrical force, which, being applied to a fluid, augments its evaporation in the ſame proportion and meaſure as a heat of 32 degrees. Judging that this degree of electrical power might be ſufficient to develope the cicatricula of an egg,

* M. Achard, indeed, acknowledges, that it was not poſſible for him to determine ſo exactly the weight of nitrous air, as that of the other kinds, becauſe the common air, of which a part always remained in the globe (which received the different ſorts of air) acted immediately upon the nitrous air, and decompounded it more or leſs.

he ſuſpended a pewter-plate with 16 eggs on the conductor of the electrical machine, and kept his apparatus during eight days, and as many nights, in a degree of electricity as near as poſſible to that which correſponds (if the expreſſion may be allowed) with 32 degrees of heat. The ſucceſs of this experiment confirmed the conjectures of M. ACHARD. Opening one of theſe eggs at the end of the firſt 48 hours, he perceived a ſmall beginning of the formation of the embryo, and he diſcerned plainly the progreſs of this formation by opening an egg every day; but an accident that diſconcerted his apparatus prevented his continuing his electrical operations to the birth of the chicken. This ſucceſsful beginning, however, will encourage new trials.

Memoir. *Concerning the* Mandragora, *or* Mandrake. By M. GLEDITSCH.—Philologiſts, naturaliſts, commentators, and wags have contributed to the propagation of the ſilly or indecent fables to which this plant has given occaſion, and which M. Gleditſch has expoſed as they deſerve, in this learned Diſſertation.

Memoir. *Concerning the Colours of Vegetables.* Firſt Part. By M. ACHARD. Philoſophers and chemiſts are not yet agreed about the true cauſe of the colours of vegetables; nor has this matter been treated hitherto with the attention it deſerves. *Hales* has recourſe to ſubtilized aerian principles, which ſeem too thin to be graſped; *Becher*, *Stahl*, and *Henckel* to iron or copper; and *Pott* to the phlogiſton, in order to account for the phenomenon in queſtion. After theſe comes Count *Mouroux* *, who, by a great number of experiments, has undertaken to prove, that flowers contain a *fixed colouring* PRINCIPLE, which exiſts even in the aſhes to which they are reduced, and communicates to the vitrifications in which theſe aſhes are employed, the colour of the reſpective flower, and of all the other parts of the plant. But after him comes M. ACHARD, who repeated all his experiments with the moſt curious attention, and the reſults he obtained from them were quite contrary to thoſe of Count Mouroux. The detail of theſe experiments, as they were made by M. ACHARD, is exceedingly intereſting. This ingenious Academician could never find the leaſt reſemblance or analogy between the colour of the vegetable ſubſtance before its *incineration*, and that of the glaſs into whoſe compoſition its aſhes entered as an ingredient. But if he pulls down an hypotheſis built upon ill-conducted experiments, he means to eſtabliſh another upon more ſolid foundations: in the ſecond Part of this

* His Memoir entitled—*A Phyſico-chemical Examination of the Colours of Flowers, and of ſome other vegetable Subſtances*, is inſerted in the 5th volume of the Miſcellanea Taurinenſia.

Memoir,

Memoir, as yet unpubliſhed, he deſigns to ſhew, that the colours of flowers and vegetables, in general, proceed only from the combination of their conſtituent parts, and from their degree of fermentation, which, according as it varies, produces, of neceſſity, a difference in the arrangement of the parts of vegetables:—hence our Author will be led to explain the cauſe of the changes which the abſence or preſence of light produces in the colour of vegetables and of other natural bodies.

Memoir. *Concerning the Meaſure of the Salubrity of the Air, containing alſo the Deſcription of two new Eudiometers.* By M. ACHARD. It appears from the accurate experiments and the important diſcoveries of Dr. *Prieſtley*, that the principal uſe of the air, in reſpiration, is its diſcharging the lungs of the phlogiſton; ſo that when the air is ſaturated with phlogiſton, and conſequently cannot charge itſelf with a larger quantity, it becomes unfit for reſpiration. The leſs, therefore, that the air is charged with phlogiſton, the fitter will it be for reſpiration; and proportionably more wholeſome; and the eudiometers are deſigned to aſcertain the degree of ſalubrity that ariſes from the greater or leſſer quantity of phlogiſton, with which the air is charged. The eudiometers of *Landriani* and *Magellan* are ingeniouſly conſtructed; but the employment of them requires preparations which cannot be made every where; beſides, a portable inſtrument of this kind, which, by an eaſy operation, can enable us to determine the degree of the phlogiſtication of the air in any place whatever, is an object of conſequence. This circumſtance gives a peculiar advantage to the invention of our Academician; for a particular deſcriptive account of whoſe eudiometers, which would be ſcarcely intelligible without a ſight of the plates, we muſt refer the curious to the Memoir itſelf, and the figures which accompany it.

Memoir. *Concerning the Cauſe of the* Aſphyxia, *and the propereſt Remedy for that Diſorder.* By M. ACHARD. As the reſpiration of mephitic vapours is the circumſtance that produces the *aſphyxia*, an examination of the cauſe that renders theſe vapours noxious will naturally lead to the true ſource of this diſorder. The obſervations and experiments, made by this indefatigable Academician, on rabbits, finches, cats, and other animals, prove, 1ſt,—That it is to the phlogiſton with which mephitic vapours are charged that we muſt attribute their noxious qualities—2dly, That the phlogiſton, which exhales from the lungs, and is obſtructed in its paſſage, produces the aſphyxia—3dly, That the accumulation of phlogiſton in the lungs is the cauſe of the numbneſs in the nerves, and of the ſuſpenſion of reſpiration during the aſphyxia—4thly, That of all the remedies hitherto employed againſt this diſorder, the immiſſion of dephlogiſticated

gisticated air is that which promises the most success, because it attacks the evil in its principle and cause.—Our Author's apparatus for transmitting this air into the lungs is well contrived.

MATHEMATICS.

Memoir. *Concerning the Determination of the Orbits of Comets after three Observations.* By M. DE LA GRANGE. Two Memoirs. This celebrated Academician analises the different methods, that have been hitherto proposed, of resolving the problem here mentioned. Sir Isaac Newton was the first who attempted it; but the solutions which he left behind him were imperfect, and those who succeeded him in the same undertaking did little more than diversify and reduce to a greater simplicity the methods pointed out by him, without rendering them more exact or commodious for practice. Our Author exposes the defects of all these methods; shews, that the problem can only be solved by approximation, and points out the manner of solving it in this way.

Memoir. *Concerning the Theory of Telescopes.* By the same. The general canons to which Messrs. *Cotes* and *Euler* attempted to reduce the theory of telescopes, are here approximated and compared together, by M. LE GRANGE, and are improved by new and interesting researches, which tend to reduce this theory to a greater degree of simplicity.

Historical and Astronomical Inquiries concerning the Polar Star, and the Constellations that are the nearest to the Poles. By M. JOHN BERNOUILLI. Three Memoirs.

Inquiries concerning the Method of finding directly the Equation of Time. By M. SCHULZE.

SPECULATIVE PHILOSOPHY.

Inquiries concerning the Unities of Nature. By M. BEGUELIN. First Memoir. We have already seen where all the researches of this kind terminate, or rather we have seen that they *do not terminate at all*—for, instead of coming at the real elements of bodies, they only arrive at the atoms of *Leucippus*, which come short of the mark, or the ideal monades of *Leibnitz*, which go beyond it, and like the arrow in the Æneid, vanish into air. Presenting to us these old systems, with new names, and some new modifications, they make us think, that we are getting on towards the principles of things; whereas we remain still pretty much in the same place. There is no guide whose penetration and metaphysical talents promise fairer to bring us some steps nearer to the fountain-head than those of M. BEGUELIN: and certainly there is an uncommon degree of acuteness in the Memoir now before us.

By the *Unities of Nature*, Mr. B. understands neither abstract unities, nor the physical, individual beings, which are the objects of our senses, but all those primitive beings, whose *organi-*

zation is indeſtructible, though ſuſceptible of different modifications, by its own powers, and thoſe of other organized beings. In a word, every unity of nature is a *machine*, immediately created by the Deity, according to our Academician; and thus we think that he has poſted himſelf between the *Monadiſts* and the *Atomiſts*. How long he will maintain this poſt, we cannot tell;—we do not mean either to interrupt him in the poſſeſſion of it, or to ſhare it with him. But there is ſomething ſo maſterly and ingenious in his manner of fortifying and defending it, that what he has ſaid may be read with profit, though we neither adopt nor reject his hypotheſis. It is certain, that theſe *organized unities* cannot be objects of obſervation. It cannot, however, be ſaid, on the other hand, that their exiſtence is *impoſſible*; and this is the only conceſſion which our Author requires at his ſetting out in this dark and intricate diſcuſſion. Indeed, analogy gives him a full right to this conceſſion, at leaſt; ſince, as he obſerves, all individual beings are organized even in their ſmalleſt particles, as far as the eye, aided by microſcopes, can carry its inſpection. It is probable, ſays he, that this organization goes much farther than we can ſee; and that, at length, the decompoſition of ſecondary machines muſt be reſolved into primitive ones, whoſe organization is the immediate work of the Creator, and which are, conſequently, *true elements*, the real unities of nature, beyond which analyſis cannot go.

This hypotheſis furniſhes Mr. B. with ſolutions of ſome of the moſt difficult queſtions that have hitherto divided the metaphyſicians. Eleven of the ſeare amply diſcuſſed in this firſt Memoir. They are as follows: 1. *Is matter infinitely diviſible, and in reality infinitely divided?*—2. *Are organical beings infinitely ſubdiviſible and infinitely ſubdivided?* The Reader may judge of Mr. B.'s manner of anſwering theſe queſtions by the following judicious obſervation: Infinity, whether of number or ſpace, is a conception merely geometrical; it is an imaginary notion; and if we conſider it otherwiſe than as the expreſſion of a term or limit to which our narrow underſtanding cannot reach, it is a palpable contradiction, ſince it ſuppoſes and annihilates limits at the ſame time. This ſhews, that *infinite* has no ſort of relation to created ſubſtances, which are eſſentially *finite*. An important truth!—3. *Does not each unity of nature comprehend an* infinity *of different parts?* No—for very ſatisfactory reaſons alleged in the anſwer to the preceding queſtion.—4. *Is not each part of an organiſed primitive being, itſelf an organiſed being, ſtill more ſimple, and ſo on, without end?* No—for then the organiſed primitive being would be no longer *primitive*; or, in other words, it would *not be* what *it is*. This queſtion can only be reſolved by baniſhing from real and finite beings the here improper and contradictory idea of *infinity*.—5. *Are not all the parts of primi-*

tive

tive unities compoſed originally of parts perfectly ſimilar and homogeneous? The diſcuſſion of this queſtion (ſays our Author) is of no moment; it is enough to know, that each part has its peculiar nature, its diſtinctive properties, its aptitude to the uſes it is deſigned to ſerve.—6. *Are the laſt* or ſmalleſt *parts conceivable of the primitive unity material or not?* If (ſays Mr. B.) you underſtand by *matter*, a homogeneous maſs, which is only extended and impenetrable, without *any other property or quality* whatever, then, neither the primitive unities, nor their parts, are *material*. Theſe *unities* have, indeed, *extenſion*, becauſe their parts are diſtinct; and *impenetrability*, becauſe two or more of theſe parts cannot occupy the ſame place; but as they come from the hand of the Creator, *organiſed*, endowed with an active power, and poſſeſſed of all the qualities that are requiſite to produce the ſucceſſive effects which reſult from their nature, the idea of mere matter, as above defined, is not applicable to them. The *entire machine*, conceived in the Divine Mind, muſt have received at once its exiſtence by a ſingle act, and thus its nature ſpurns analytical inveſtigation. The *primitive unity* does not reſemble Pygmalion's ſtatue, whoſe compoſition was effectuated by repeated ſtrokes of the chiſſel on a rude and ſhapeleſs maſs of marble; it rather reſembles the form of Minerva, who iſſued forth, inſtantaneouſly, with all her armour, from the brain of Jupiter. If this be true with reſpect to the primitive unities, it is equally applicable to all their parts.——7. *Are the laſt or ſmalleſt parts of the unities of nature without ſize, extenſion, or figure?* They are the *elements* of ſize, extenſion, and figure; as, in arithmetic, unity is not number, but the element of all numbers whatever. See the Memoir.—— 8. *Might not the Deity have created the ſimple, elementary parts of the unities, and deduced from them theſe primitive unities by ſome general laws of nature?* What the Deity could or could not do, our Author thinks it raſh in us to determine; he, however, modeſtly puts a negative upon the queſtion, and gives his reaſons, for which we refer to the Memoir, as (contrary to what uſually happens) we are ſomewhat in haſte.—9. *To have recourſe to the* IMMEDIATE CREATION *of the unities of nature, is not this cutting the knot, inſtead of looſing it?* No—for in all inveſtigations of a coſmological nature we muſt come, at laſt, to immediate creation.—10. *Does not the analyſis of compound beings lead us more naturally to the* monades *of Leibnitz, or the* ſimple elements *of Wolf, than to the primitive unities or automata of nature?* No—and, hypotheſis for hypotheſis, we think that of our Academician preferable to thoſe of the two great German birds of Minerva; ſince on his hypotheſis the corporeal univerſe has a *true* and *real* exiſtence, conformable to the reports of our ſenſes and feelings, and is not a mere ideal phenomenon, as it muſt be in the ſyſtems of Leib-

nitz and Wolf.—11. *Are the unities of nature ſuſceptible of perceptions?* Our Author needs not be more embarraſſed by this queſtion, than his neighbours in philoſophy. On the ſuppoſition of *two diſtinct ſubſtances* his hypotheſis is ſubject to as little difficulty as that of the doctors, who maintain an immediate and phyſical influence of mind upon body, and of body upon mind,—and on the ſuppoſition of *one* ſubſtance only, he recurs to the *fiat* of the Creator; and Dr. *Prieſtley* (if his material coheſion of—*we know not what*—holds yet tight) will help him out of the mud, or enable him to ſit in it reſpectably. However this may be, M. BEGUELIN's diſcuſſions of this laſt queſtion are acute and ingenious in a very eminent degree: they are worthy of the high reputation he deſervedly bears, as one of the firſt adepts of the preſent age both in ſpeculative and natural philoſophy.

Inquiries concerning the ancient judiciary proceedings againſt Sorcerers and Witches. By M. FORMEY. This ſhews, from good documents, that the ſorcerers were rich, and that the judges were covetous rogues, who neither believed in witchcraft nor magic, but panted after confiſcations.

Memoir. *Concerning certain Maxims that ought always to be kept in view in philoſophical inveſtigations.* By M. COCHIUS. Solid and judicious.

Memoir *concerning Defects.* By DOM. PERNETY. What he ſays is true and trite.

BELLES-LETTRES.

Memoir *concerning the influence of the ſciences on Poetry*, Fourth Memoir—By M. MERIAN. This Memoir, which contains only 150 pages, takes up Latin poetry in its cradle, and follows it ſtep, by ſtep in five ſections, until, after a long ſtate of ſickneſs and decrepitude, it expired in the arms of Sedulius, under the reign of Conſtantine.

ART. IV.

MEMOIRES *de l'Academie Imperiale et Royale des Sciences et Belles-Lettres de Bruxelles:* i. e. MEMOIRS of the Imperial and Royal Academy of Sciences and Belles-Lettres of Bruſſels. Vol. II.* 1780, 4to. pp. 671. (price 14 s. ſterling.)

THIS valuable collection is carried on with regularity, capacity, and ſpirit, and deſerves, in an eminent degree, the attention and applauſe of the republic of letters. The preſent volume, in purſuance of the plan already obſerved in the former, is divided into two unequal parts: the firſt is taken up with the *journal of the ſittings* of the academy, which contains an account

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* For our account of vol. I. ſee App. to Review, vol. lix. p. 510.

of the pieces preſented, and of the ſubjects of their deliberations; and the ſecond contains the *Memoirs*.

JOURNAL OF THE ACADEMY.

EXTRACT *of a Memoir concerning the Gloſſopetras and Buſonitæ*, by the Abbe WITRY, Canon of Tournay; deſigned to prove, againſt the aſſertions of the celebrated Mr. *Henckel*, that theſe productions derive their origin from different marine bodies.

EXTRACT of a *Memoir concerning an œconomical Stove, better adapted to warm Apartments, than thoſe hitherto invented*; by the ſame. As chimneys certainly warm a chamber unequally, and are a kind of ventilators, adapted more to renew the air, than to diffuſe warmth in an apartment, this memoir is an object worthy of attention.

EXTRACT of a learned *Memoir of M. Van Wyn, penſionary of the Brille* (now of Gouda), deſigned to remove the confuſion which the reſemblance of certain names has produced in the Flemiſh hiſtory.

ANALYSIS of the *Memoir of Mr. Needham, concerning the contagious Diſorder that reigns* (and has reigned ſo long in the Netherlands, more eſpecially in the United Provinces) *among the horned cattle.* Having divided the diſorders incident to organized bodies into two claſſes, the *firſt* comprehending thoſe that are inflammatory in conſequence of a ſuperabundance of vital powers, and the *ſecond*, thoſe that, through a defect of vigour, are of a putrid or gangrenous nature, our academician places the diſeaſe among the horned cattle in the latter, and therefore conſiders antiſeptics, as the true preſervatives againſt this fatal malady. As, however, the expences attending the Peruvian bark, nitre, brandy, *aſſa foetida*, camphor, &c. are conſiderable, and burdenſome to the peaſant, he recommends marine or rock-ſalt as a cheap and effectual preſervative; and he ſhews, by a variety of arguments and obſervations, its ſalutary effects.

EXTRACT of a *Memoir, containing a General Theory of round Flints, together with Conſiderations on the ſtrata of theſe Flints, that are found in the Country about Louvain.* By M. DE LAUNAY.

Remarks on the learned Preface to the Iriſh Vocabulary, printed at Paris in 1768, by the Count DE FRAULA,—who ſhews that the *Iriſh* and the *Belgi* have the ſame origin, and deſcend from the ancient Scythians.

OBSERVATIONS *on the Belemnites, by M.* De MARCI.

A MEMOIR *concerning ſome MSS. of the Public Library of the Abbey of St. Vincent at Beſançon.* By Dom. BERTHOLD. The object of this memoir is a collection of 80 volumes *in folio*, which are comprehended under the general title of—*Manuſcripts of Granvelle.* They contain the moſt intereſting events that diſtinguiſhed the reigns of *Charles* V. and *Philip* II. during the miniſtry of Nicholas Perrenot, and Anthony his ſon, known

under the title of Cardinal Granvelle. Though there are ſome interruptions in this important ſeries of hiſtorical materials, thoſe that have eſcaped the ruins of time are curious and inſtructive: ſuch are, the original letters of Charles V. Ferdinand, Maximilian II. Philip II. Mary Queen of Hungary, Eleonora Queen of France, Mary Stuart, the two Margarets of Auſtria, and other illuſtrious perſonages. Theſe letters, written at a period when no ſuſpicion of their future publication could influence or reſtrain the writers, lay open ſprings of action, reaſons of ſtate, motives and views, which ſerve as authentic guides in judging of events, and expoſe to *obſervation* characters, which hiſtorians have only delineated by *conjecture*.

MEMOIR *of Dom. Berthod* containing *the Voyage of Claude Belin to Bruſſels, drawn from the 25th and 26th Volumes of the MSS. of Granvelle.* It is well known that the Duke of Alva began his odious adminiſtration by the arreſt and trial of the Counts of Egmont and Horn. Claude Belin, advocate-fiſcal in one of the diſtricts of Burgundy, was ſent for to Bruſſels, to perform the functions of this office in the trial of the two counts. The ſubſtance of the memoir before us is drawn from letters, written on this occaſion to Cardinal Granvelle, particularly by Belin, who ſeems to have been an honeſt man. In theſe letters we have a curious account of the unworthy proceedings of the council, that ſat in judgment on theſe illuſtrious victims of ſuperſtitious tyranny, of the cabals of the Spaniards to remove all the Fremiſh nobles from the council of ſtate, and of the unſupportable arrogance of Vargas and Del-Rio, who owed their aſcendant to their ſervile ſubmiſſion to Alva. But the object we have particularly in view here, is a letter which Cardinal Granvelle wrote from Rome to Belin, in anſwer to his complaints of the proceedings of the council and its ſanguinary chief.——This letter paints Granvelle's character in a much more lively manner than any hiſtorical pencil has done, and the antiquated French ſtile in which it is compoſed, is a vehicle to the matter it contains, which (we know not why) ſtrikes us moſt agreeably. We ſhall extract ſome paſſages from this letter, which, though they may loſe a great part of their zeſt in our tranſlation, will nevertheleſs ſhew the character of the man.

"Good Mr. Advocate (ſays *Granvelle* to *Belin*) I received your "letters on *St. Andrew's* day, and, on my faith, they put me in "a great pother, ſeeing, by the ſame, what is doing, and that "you have begun to ſtand forth againſt thoſe who are placed in "the management of affairs; nay, even againſt the Spaniards, "who have the Duke's good graces—whether they deſerve "them or not—of which, in my thinking, you ought not to "come forth as a judge.——You have had rubs, it is true, but "methinks you have already forgot what you wrote me lately,

"that

" that you remembered to have heard me ſay, in my ſaloon at " Beſançon, *to wit*, that there are things of which we muſt not " keep up a reſentment or after-taſte; ſuch, for example, as " *invectives* and *pills*, which we ought to ſwallow without chew- " ing, that we may not perceive their bitterneſs; and in like " manner at court."———Again—" If by being too touchy, " and by refuſing to ſuffer and to yield gently to the humours " of your ſuperiors, you render yourſelf odious, and ſpoil your " affairs, it is not my fault, and I will ſay with the Prophet, " *Quod in me fuit præſtiti tibi.*——For God's ſake do both in " *matter* and *manner*, *what* they (ALVA and VARGAS) will, " and *how* they will: they can give you no place, that will not " prove better than that which you hold in Burgundy, and if " they deſire to have you among the *fiſcals*, take care to ſerve to " the Duke's mind.—He that aſpires after preferment muſt " learn to ſuffer, eſpecially at his ſetting out, and muſt not be " daſtardly and fearful. If you had been in my place in Flan- " ders, when, two years long, I was told every day that I " ſhould be ſtabbed, you would have died of the affright; and " even here, where I am at preſent, it behoves me to be upon " my guard. The man who hopes to riſe, muſt venture his " ſkin; and I wonder not a little at your apprehenſions at the " writings that will be compoſed in Germany againſt the pro- " ceedings (*with reſpect to Egmont and Horne*).—Only think of " the writings that were thrown out againſt me in Flanders: I " made a wide throat, and let them go down ſweet as milk:— " the ſtrokes of pen upon paper are not thruſts of a dagger."— The whole letter is in this ſtyle and manner, and ſhows the man.

Other Memoirs are mentioned in this JOURNAL, but as they are either printed entire in this preſent volume, or reſerved for ſucceeding volumes, we ſhall take notice of them in their proper place, in our account of the memoirs,—to which we now proceed.

MEMOIRS.

Memoir. *Concerning elementary Fire, conſidered in general as exiſting throughout all Nature, together with conjectures relating to its different Modifications, its Laws of Action, its End, and its univerſal Utility.* By the Abbé MANN. We are working hard, in this period of philoſophy, to get at the ſecret of Nature, with reſpect to the origin, eſſence and properties of the ſubſtance, which, whatever it is, ſpreads *light* and *heat* throughout our globe, and ſeems to be the great ſpring and agent in the material world. *Experiments and obſervations* are aſſiduouſly employed in this important line of ſpeculation; and it cannot be ſaid that they have been wholly deſtitute of ſucceſs. *Conjectures* alſo may be allowed a place, ſince, when they are not contradicted by the

other two inſtruments of inveſtigation, they may have their uſes, and lead us through bye-roads into the path of truth. The very learned Author of this memoir is a firſt-rate conjecturer, and it muſt be confeſſed, that his conjectures carry evident marks of ſagacity and genius. His memoir is compoſed of three ſections. In the firſt, he treats of *light*, *heat*, and the *electrical fluid*, conſidered in general as different modifications of one and the ſame principle, which he calls ELEMENTARY FIRE. This fire, according to him, is a diſtinct ſubſtance, a ſeparate and primitive element; it is an aſſemblage of the molecules of *a* matter that is evidently homogeneous, inalterable, *incoercible* *, always in action and motion, or tending thereto, eſſentially fluid, and the principal cauſe of all fluidity in Nature, and of all heat and burning in bodies.——This account of fire contains nothing new: it is the revived opinion of Homberg, Boerhave and S' Graveſande, ſet out with new improvements, and may, for ought we know, be right. *Light*, according to our author, is probably a modification of this *elementary fire*, which it can only produce, when active and diſengaged, to a certain degree, from thoſe heterogeneous bodies with which it is very often combined; whereas, in order to produce *combuſtion* or ſenſible *heat*, only a high degree of denſity is required, which is always proportionable to the degree of the combuſtion. Hence he accounts for the exiſtence of *light* without *heat*, and for the different degrees of the ſun's heat, though light and heat be the effects of one and the ſame principle. Our academician conſiders farther, the *elementary fire* in the different degrees of what he calls its *unitive affinity* to different ſubſtances, and the effects reſulting from thence upon its action, as alſo in the different *manner* in which it exiſts in bodies, as lodging in their pores, or combined with them as conſtituent parts of their ſubſtances. He thinks, that by conſidering *light* as the motion of fire in a right line, and *heat* as the agitation of the ſame fluid (fire) moving in all directions, this theory will explain, in a ſatisfactory manner, the ſeveral phenomena of *light* and *heat*, with all their modifications, that are obſervable on our globe.——This theory is old, and may be true.

Electricity is the third modification of the *elementary fire*. It partakes, according to our Author, of the nature of light, common fire, and phlogiſton, and holds a middle rank between *light* and *heat*, being more combined and mixed with heterogeneous ſubſtances than the former (which comes neareſt to the nature of its principle), and leſs than the latter.

The reſult of this FIRST SECTION is, that the infinitely ſubtile and active *fluid*, which adminiſters *light* and *heat*, and which

* By *incoercible*, we ſuppoſe our Abbé means untractable.

acts

acts upon, and perhaps always electrifies, more or leſs, univerſal Nature, is one diſtinct element, to which a diverſity of modifications gives different properties and effects, that its principal and viſible ſource, *with reſpect to us*, is the SUN, which, turning upon its axis, performs the functions of an electrical globe, and ſends forth ſtreams and torrents of that elementary fire, that is the great, active and vital ſpring of life and motion.——This is an ingenious improvement of Boerhave's theory.

In the 2d SECTION, which is ſtill more curious, the learned Abbé conſiders the elementary fire, *in the great phenomena of Nature, which it produces, in its modification, as an electrical fluid.* He begins by pointing out its operations and effects on *terreſtrial bodies*, and ſhewing the part which the electrical fluid acts in animal ſenſation, in the vegetation, mechaniſm and reproduction or renovation of animal and vegetable ſubſtances, in the formation and developement of meteors, and in many other terreſtrial phenomena, that come perpetually under our obſervation. His compariſon between this fluid, and that which anatomiſts call the *animal ſpirits*, from whoſe action our ſenſations and motions ariſe, is certainly ingenious, and the analogy between the *animal* and the *electrical* fluids appears to him ſo entire and perfect, that he attributes them, without difficulty, to the ſame principle. Here alſo, he finds the point of communication and union between the ſoul and body, which, notwithſtanding the ſimplicity of the one, and the compound nature of the other, muſt have ſome *mean* of communication; becauſe of this communication, and of their *real* and reciprocal action in each other, we have an intuitive, irreſiſtible and continual *conſciouſneſs*, which is the higheſt kind of evidence. The learned Academician has treated at great length, the important and curious ſubject of this ſection in a large work, bearing this title, THE METAPHYSICAL PRINCIPLES OF BEINGS *(principes metaphyſiques des etres)*, and which he propoſes to publiſh ſome time hence. This conſiderable work will naturally excite an impatient curioſity. With reſpect, however, to the analogy between the electrical and animal fluids, we think it is preſented in a very ingenious and plauſible manner, from various points of compariſon, in the Memoir now before us.

In Section III. the elementary fire is conſidered, by our Author, in *its operation in the higher regions, and in the celeſtial phenomena.* Here, in proportion as the Abbè aſcends, he gets into the region of conjectures; but as he proceeds with equal circumſpection and courage in this vaſt region, we have followed him with great pleaſure, and found him an entertaining and inſtructive guide. The *aurora borealis* is the firſt phenomenon conſidered in this ſection. Our Author ſhews, that the accounts given of the cauſes of this phenomenon by *Mairan*, *Hell*,

and

and other writers of note, are unſatisfactory, and that they contradict the moſt palpable facts, and the moſt accurate obſervations. He proves, by the moſt concluſive arguments, that it is produced neither by the zodiacal light, nor by fermenting exhalations that take fire in the atmoſphere, nor from the refraction or reflexion of the rays of the ſun or moon falling upon the ſnow or the icy clouds of the north. He brings many ingenious arguments, and offers a multitude of obſervations, to prove that this meteor, in its appearances in the Polar regions, both northern and ſouthern, is nothing more than an *emiſſion of the electrical fluid, which diſengages itſelf from the earth, and aſcends in the atmoſphere (in thoſe parts of the earth that are oppoſite to the ſun) in a rectilinear direction*; and he alſo endeavours to prove, that this *electrical emiſſion is cauſed by a ſuperabundance of heat received by theſe oppoſite parts*, which, according to the known laws of electricity, give them the quality of *conductors*.

Comets, and their *tails*, come next into conſideration. The tails of theſe great and luminous bodies having a manifeſt analogy to the aurora borealis, the learned Academician cloſely follows this analogy in all its reſpects; and ſhews, by unanſwerable arguments, that it is complete and perfect. From hence he concludes, that the aurora borealis and the tail of the comet proceed from the ſame principle, and are formed of the ſame matter; that they are emanations of the electrical fluid from their reſpective bodies, and that this fluid often becomes a phlogiſton by the heterogeneous mixtures, which it carries along with it in this emanation, which accounts for the different colours and other circumſtances obſervable in theſe meteors. As *electrics* (ſays he), when ſufficiently heated, become *conductors* of the electrical fluid, and yield emanations of it in proportion to the quantity they naturally contain, this is preciſely the caſe with the earth and the comets in their perihelia. The approach of the comets to the ſun, and the ſuperabundant degree of heat, which they receive from this approach, diſpoſe them to ſend forth a proportionable part of their electrical fluid, whoſe emiſſion produces all the phenomena we obſerve in the tails of comets, the *auroræ borealeſ*, and ſeveral electrical experiments. Theſe phenomena, therefore, have the ſame cauſe and one common principle. In the receſs of the comet and its increaſing diſtance from the ſun, this viſible emiſſion of electrical matter diminiſhes gradually, and at laſt totally diſappears, and inſtead of being an electrical conductor, which it was in its perihelion, it attracts the fluid, is charged with it anew, and thus becomes electric, until its approach to the ſun, and the heat it acquires thereby, change it again into a *conductor*.

As we cannot follow our learned Academician through all the details into which he enters in the diſcuſſion of this curious part of

of his ſubject, we ſhall only obſerve, that, from the prodigious activity of the electrical fluid, its tendency to eſcape from the bodies which contain it, and to diffuſe itſelf in the vaſt planetary regions, which come the neareſt to void ſpace, he draws ſome conjectures relative to the uſes and the end which comets may ſerve in the planetary ſyſtem. His conjectures amount to this: that comets are real electrical bodies, deſigned to collect the electrical fluid, which has eſcaped from the planets;—that theſe comets, heated by their approximation to the ſun, communicate this fluid anew to the planets, and thus the perpetual circulation of this active fluid, ſo neceſſary to the great *whole*, is maintained and renewed inceſſantly;—and that the operations of Nature in the planetary ſyſtem, are carried on in a manner analagous to what we conſtantly obſerve and experience in the perpetual circulations of our atmoſphere, where winds, vapours, and exhalations riſe and float, then return to us in rain, ſnow, or fulminating exploſions, and again are exhaled and raiſed anew. *Every thing* (ſays our Author, and we are perſuaded that he ſays the truth) *is analogous and harmonical in univerſal Nature.*

An ANALYTICAL ESSAY *on the mechaniſm of Vaults.* By the CHEVALIER DE NIEUPORT, commander of the order of Malta, &c. This elaborate piece, which contains 89 pages, requires the inſpection of the plates.

A MEMOIR *concerning the curves, deſcribed by a Body approaching to, or receding from, (in a given ratio) a Point which proceeds in a right line.* By the ſame.

Memoir *concerning the method of finding a Factor, which will render a differential Equation complete, when this Factor muſt be the product of Two Functions, each of which contains only One variable Quantity* By the ſame.

Memoir *concerning the Natural Hiſtory of the North-Sea* *, *and the fiſheries carried on in it.* By the Abbé MANN. In the firſt ſection of this ample Memoir, the laborious and learned Academician conſiders the limits of the North-ſea, its form, its ancient and modern denominations, its ſituation with reſpect to other ſeas, and to the countries adjacent; its ſtorms, their duration, velocity, force, and the natural cauſes of their direction; its climate, icy accumulations, depth, &c.

In the ſecond ſection he treats of the tides and currents of the North-ſea. Here, after conſidering the laws of motion, that regulate the direction of fluids, he treats of the direction of

* By the North-ſea, our Academician underſtands that part of the ocean which is comprehended between the eaſtern coaſts of Great-Britain, from Dover to the iſlands of Shetland on the one ſide, and the oppoſite or weſtern coaſts of Norway, Denmark, and the Netherlands as far as Calais, on the other.

the

the tides in general, and of thoſe, more particularly, which come from the northern ocean * into the North ſea, and by their direction from north-eaſt to ſouth-weſt, enter partly into that ſea, and partly into the Atlantic, by the north of Scotland and Ireland. This direction our Author deduces from the following principle, that the tides of the ocean, in conſequence of the gravitation of its waters towards the moon, take naturally their courſe from north-eaſt to ſouth-weſt in thoſe parts of the ocean that are to the north of that planet, and from ſouth-eaſt to north-weſt in thoſe that are to the ſouth. The application of this principle to the courſe of the tides, and the irregularity and different directions of the coaſts from whence the tides are reflected *(according to the law of equality between the angles of incidence and reflection)* account for the formation of currents, ſandbanks, &c. and open a field of diſcuſſion in which the learned Abbé expatiates, and in which we are ſorry that we cannot follow him. We are perſuaded that geographers and navigators will read with ſingular pleaſure his principles, combinations, and concluſions, which ſeem to be the reſult of long obſervation and ſtudy. His theories are confirmed by the Marine charts and Atlaſſes, both Dutch and Engliſh, which he appretiates with judgment in this ſection.

The third ſection relates to the *ſand-banks* and *ſhoals* of the North-ſea, and the local changes *that have been produced in it, by ſtorms and other natural cauſes.* The objects of diſcuſſion in this ſection are, the formation of ſand-banks in the interior of the North-ſea, and the reaſons why they do not gradually increaſe in ſize—the formation of banks near the coaſts—the effects and re-action of the banks already formed upon the tides and currents—the changes which the ſand-banks and the bottom of the North-ſea undergo—the ſand-banks in other ſeas, which differ in kind from thoſe of the North-ſea, and are owing to different cauſes.

The *natural Productions of the North-Sea, its fiſheries, and the methods of improving them*, are the ſubjects of the fourth ſection; which commences with a general account of the vegetable and animal productions of the North-ſea, and of the authors who have deſcribed them. This is followed by ample liſts of its fiſh, ſhell-fiſh, aquatic birds, and plants. Our Author's account of the herrings, their different kinds, and their voyages, his particular remarks on the various ſorts of fiſh contained in this ſea, and immenſe gain which might be made by putting the fiſheries on a proper footing, are curious and intereſting.

* That is, from that part of the ocean which lies between the Arctic pole and the coaſts of Siberia, Nova Zembla, Lapland, and Norway.

But nothing is more worthy of attention than his inquiry into the cauſes of the diminution of the number of fiſh in the North-ſea, and more eſpecially on the Dutch and Flemiſh coaſts, during theſe laſt 25 years; a fact which is aſcertained by the unanimous accounts of thoſe employed in the fiſheries. He attributes this diminution to three cauſes, of which the two firſt are phyſical: the firſt is the ſea's having loſt a part of its fertility, and of the aliment which is neceſſary for fiſh. As in certain lands, the force of vegetation and the nutritive juices ſeem to fail and decline at certain intervals, the ſea alſo may loſe a part of that fertility which is peculiar to its bottom; and what ſeems to prove, ſays our Academician, that this is really the caſe, is the ſmall quantity of marine plants and productions, that is at preſent caſt by the ſea on the Flemiſh coaſts, in compariſon with what there was about 18 years ago, and this quantity, as the Abbé MANN affirms from ocular obſervation, diminiſhes from year to year. Now, it is well known, that theſe marine plants and productions are the habitations of different kinds of inſects and worms, which nouriſh the ſmall fiſh; as alſo that theſe latter contribute to the nouriſhment and ſubſiſtence of the larger kinds, and that thus when any claſs of the finny tribe decays for want of food or ſhelter, the reſt muſt be affected by this decay: not to mention, that the immenſe quantity of ſhrimps and other ſmall fiſh that are taken and conſumed on the coaſts of Flanders, may alſo contribute to the diminution in queſtion.——A ſecond cauſe of the diminution of the number of fiſh on the coaſts of the Netherlands, is alledged modeſtly by our Author, not as aſcertained, but as a matter of probable conjecture; it is *the earthquake*, that deſtroyed a great part of the city of Liſbon in 1755. This was felt all along the Flemiſh coaſt, where the agitation of the waters was ſo great as to drive the ſhips from their moorings. The line of direction that the ſhock of this earthquake followed in the North-ſea, was the coaſt already mentioned; and it is natural to ſuppoſe (ſays our Abbé) that this ſhock may have been attended with ſulphureous or bituminous eruptions, which may have left in the bottom of the ſea ſome pernicious or diſagreeable quality, adapted to ſpoil or diminiſh the nouriſhment of the fiſh. But a more palpable circumſtance that not only may, but *muſt* have contributed to the event complained of, is the manner of fiſhing that has been practiſed, theſe 2 years paſt, on the Flemiſh coaſts, in oppoſition to the numerous edicts of the ſovereign. This manner our Academician deſcribes in all its kinds, ſhews its pernicious conſequences, and points out the meaſures that he thinks proper to prevent the growing evil.

This curious Memoir is the fifth that has been compoſed by the Abbé MANN, on the Natural Hiſtory of the Netherlands, and

and of the ſea that waſhes their coaſts. The firſt, which comprehends a general view of the natural ſtate ancient and modern of theſe countries, was publiſhed in the firſt volume of the Academy. The ſecond treats of the ſoil and climate of the country, the genius and manners of its inhabitants; the third of the methods of improving its population and fertility; the fourth contains an ample diſcuſſion of every thing relative to the force and motion of the waters in its rivers, canals, and ſluices, from whence our Author deduces the means of preventing inundations, and modifying at pleaſure the courſe of the waters, by which alone the defects of the ſoil and climate can be remedied. Theſe three intermediate Memoirs are as yet unpubliſhed.

To this fifth Memoir are ſubjoined an *hydrographical Chart of the North ſea.*——*A Table of Compariſon between the tides on the coaſt of Flanders, and divers fixed Points in the adjacent Country, and a Table of the times of High-water in different places of the North-weſt ſeas of Europe, for all the days of the Moon.*

Memoir. *Concerning the Effects and Phenomena produced by pouring different ſorts of Oil both on calm and agitated Water.* By the Abbé MANN. The *firſt* part of this Memoir contains an hiſtorical account of the knowledge that has hitherto been communicated to the Public on this ſubject, from Pliny down to our times. This account is compriſed in a few pages. The *ſecond* and *third* parts contain an enumeration of the experiments that have been made to aſcertain the effects and the phenomena produced by oils in ſtill or ſtagnant waters, as alſo on the rivers and in the ſea, together with phyſical explications of theſe effects. The conſequences deduced from theſe experiments, and the benefit that may be expected from throwing oil on the waves of the ſea, are pointed out in the fourth and laſt part. The reſult of theſe experiments is, that the different effects produced upon water at reſt or in motion by different oils, whether animal, vegetable or mineral, do not ariſe from their different ſpecific gravities, nor their qualities as ſweet, bitter, &c. but *almoſt* entirely from their different degrees of *unctuoſity*. Our Academician attributes the general efficacy of all oil in calming water, to a very different cauſe from that adopted by Monſieur ACHARD, of whoſe Memoir on this ſubject mention is made in this *Appendix*, in our account of the *Berlin Memoirs*. He ſuppoſes that the oil, as far as it expands itſelf upon the waves, intercepts, by its unctuoſity, the affinity between the *wind* and the *water*, and thus makes the former loſe its hold upon the latter. In this caſe the wind, inſtead of raiſing the water, and ſwelling the wave, glides over its ſurface, and thus compreſſes and flattens it.

OBSERVATIONS *on the Natural Hiſtory of the Ant, in which the miſtakes of certain celebrated Authors are occaſionally pointed out.* By

By Mr. NEEDHAM. We remember to have heard of a great adept in natural hiſtory, who became a deiſt, by reading ſuperficially Solomon's account of the ANT *, and the erroneous manner in which this account is repreſented by the commentators, who have added, out of their own fancy, that the ant provides her meat *for the winter ſeaſon* by her prudent labours in the ſummer and harveſt. Had Solomon ſaid ſo, and drawn from a commonly received opinion, an occaſion to recommend foreſight and induſtry, we cannot ſee how this ſhould affect the credit of ſcripture. But Solomon ſays no ſuch thing: he only mentions (obſerves Mr. NEEDHAM) the proviſion which theſe admirable inſects accumulate for their young, for themſelves againſt days of ſtorm and rain, and for the ſick and lame of the community: he makes no mention of the winter, in which, it is now well known, that theſe inſects lie benumbed in a ſtate of ſleep, and uſe no food at all. Mr. NEEDHAM, after having juſtified Solomon at the expence of the commentators, addreſſes ſome words of philoſophical admonition to certain pretended ſages, who forming haſty obſervations of the phenomena of Nature, draw raſh concluſions with reſpect to the wiſdom of its arrangements, in order to render more than ambiguous the wiſdom and goodneſs of its Author. He draws, with nicety and preciſion, the line of diſtinction between the principle of *life* and *vital motion*, which produces, by the *fiat* of the Creator, the operations and œconomy of the lower claſſes of animals, and the principles of *intelligence*, *perception* and *ſenſation*, with which this principle is combined in the higher orders. After granting to M. *Buffon*, that ſuperficial obſervers have been induced by falſe appearances, to attribute to the *ant* a *provident* regard to a future period which is beyond its faculties, he denies that the operations of theſe animals acumulate a groſs habitation, and a multitude of proviſions without *any end*. He ſhews, on the contrary, by a curious detail of facts, that all theſe operations have the wiſeſt and moſt beneficent ends, whether the *ant* is conſcious of them or not, and that they tend to the preſervation and ſupport of the little republic, by gathering daily proviſions for its members, and contributing to the warmth and nouriſhment of the brood during the ſummer and autumnal ſeaſons. It is thus, that with the ſpirit and judgment of a true philoſopher, Mr. NEEDHAM aſſerts the ſyſtem of *final cauſes*, which are the only pure ſources of conſolation to man, againſt the uncomfortable reveries of thoſe *ſublime* geniuſes, who take ſuch a frenetic pleaſure in making Nature play at *Blindman's Buff*.

Memoir. *Concerning the pernicious Effects of Muſcles.* By Monſieur de RONDEAU. This Memoir is little more than a *ſupplement* to the obſervations made on this ſpecies of ſhell-fiſh

* PROV. vi. 6, 7, 8.

by Dr. *Beunie*, of which we made particular mention in our account of the firſt volume of this valuable collection. Dr. *Rondeau* is a ſtill more keen monitor againſt muſcle eating than Dr. *Beunie:* he conſiders them as dangerous in every ſeaſon, as well as during the ſummer months; and contends, that neither roaſting, boiling, nor ſtewing, are ſufficient to remove their noxious qualities; of which he gives ſeveral examples in this Memoir. However, to relieve epicures from the conſternation into which this alarming deciſion muſt throw them, he compromiſes matters by propoſing a preſervative againſt the noxious effects of this delicate food, much more efficacious than the onion, which is uſually boiled with the muſcles for this purpoſe. This preſervative conſiſts in vegetable acids and pepper. When your muſcles are well waſhed, paſs them through vinegar, and boil them in an earthen pot, with a glaſs of vinegar and ſome whole grains of pepper. If you chuſe to boil them in their ſhells, pour into the ſhells ſome vinegar or verjuice, and a little pepper.—— We ſhall do ſo, Doctor.

NEW RESEARCHES. *Concerning the nature and œconomy of Bees, with practical Inſtructions adapted to improve this important branch of Huſbandry.* By Mr. NEEDHAM. This elaborate Memoir adminiſters an important admonition to thoſe who believe too haſtily in pretended experiments. Mr. NEEDHAM pulls down and builds, and he does both with a vigorous and maſterly hand. Our Readers will recollect the amazing novelties, *founded on experiments*, that Mr. SCIRACH * paſtor of *Little Bautzen* in the Upper-Luſatia, introduced into the theory of the generation of the Queen-bee, and of the ſex of the working bees. According to this theory (which ſet a gazing the diſciples of Swammerdam, Maraldi and Reaumur) all the *honey* or *working* bees, inſtead of being *neutral* in point of ſex, are females in diſguiſe, and would have become Queen-bees, had they been, when in their worm-ſtate, lodged, fed and educated for that purpoſe. This hypotheſis, though buttreſſed by experiments, is beat to pieces in the Memoir now before us. The firſt attack is made by nine obſervations of Mr. *Reim* member of the œconomical ſociety of *Lauter* in the palatinate, which ſhake the edifice to its very foundations, and our Author's obſervations and counter-experiments complete its deſtruction. Mr. NEEDHAM enters ſtill farther into the ſecrets of the hive, and by a variety of new and important experiments and obſervations, which are here enumerated in ample detail, he unfolds the myſteries of the generation and œconomy of theſe curious inſects. The reſult of his reſearches is as follows: The queen-bee is the *only* female of the hive,—the drones or males are of two kinds, of which there are *always* great numbers, as it *ſometimes* happens

* See Rev. Vol. xlviii. p. 562; and Vol. lix. p. 460.

alſo

alſo that there are two ſorts of queens.——The males never copulate with the female, but only render her eggs prolific by the emiſſion of a ſeminal liquor into the cell where the eggs are depoſited—their number is in proportion to that of the eggs of the female, amounting to ſeveral thouſands during the ſeaſon of laying—there remains a certain number of the ſmaller kind of *drones*, ſaved from the maſſacre of the larger ſort, which the working bees put to death towards the end of autumn—there are three diſtinct kinds of eggs, which produce three diſtinct kinds of bees, the *female*, the *males*, and the neutrals, without any deviation.——Theſe eggs are depoſited at random by the female in common cells, and are placed afterwards in their reſpective ones, generally ſpeaking, by the working bees.——There are eggs, however, of all ſorts, which remain in cells, that are not peculiar to them, and from theſe the ſmaller kinds of queens and drones derive their birth, by which arrangement the two kinds of drones are preſerved, and a new queen-bee may be obtained, by placing one of theſe eggs in the royal cell, when the old queen is ſeparated from the ſwarm by any accident.

In order to derive every poſſible advantage from the obſervations and experiments contained in this Memoir (as far as they are adapted to multiply the ſwarms in our northern climates, where they ſuffer ſo often by the inclemency of the ſeaſons) Mr. NEEDHAM lays down ſeveral uſeful directions. Theſe directions regard the conſtruction of hives, the manner of placing them, and a number of circumſtances relative to the management of theſe precious inſects.——The important diſcoveries of M. *Debraw* are likewiſe conſidered in this Memoir.

A CHEMICAL ESSAY *on Lands or Soils; deſigned to eſtabliſh fundamental Principles, relative to the cultivation of Heaths.* By M. J. B. DE BEUNIE. This Memoir, which contains 117 pages, was read at three different ſittings of the Academy. It conſiſts of fourteen chapters. The *two firſt* treat of the neceſſity of agriculture, and the *conſtituent principles of vegetables*; the *third* of the four common elements, as inſtruments of vegetation; and the *fourth* and *fifth* contain a chemical examination of the ſoils in the environs of Antwerp: the *ſixth* chapter is employed in inquiries concerning the *cauſe of fertility*, in which the Author conſiders clay, rendered active, as the baſis of vegetation, and the fertility of a ſoil as depending upon the quantity of this ſubſtance which it contains. In the *ſeventh* our Author enumerates all the known methods of improving land, and relates a variety of experiments relative to this object. The three following chapters treat of vegetation, farms, and incloſures. The manner of fertilizing heaths, of improving low and marſhy grounds which have a turffy bottom, of forming plant-

ations, and of employing manure, are the ſubjects treated in the four laſt chapters.

Memoir. *On the origin of accidental Foſſils in the Belgic Provinces, to which is prefixed a Diſcourſe concerning the Theory of the Earth.* By M. DE LAUNAY. In the preliminary diſcourſe the learned Academician cenſures thoſe ſyſtem-makers, who, not conſidering the various revolutions which this globe has undergone, nor attending to the times and cauſes relative to particular phenomena, chuſe ſome favourite *principle* or *fact*, and explain all the phenomena by *it* alone. The univerſal deluge, the *Tertiary* mountains formed by the ſediment of the waters of the ocean—the rivers, rains and running waters—the earthquakes and volcanos, all theſe have their peculiar effects, according to our Author, and furniſh diſtinct lights to explain the particular phenomena of Nature, that come under our obſervation. As, however, an immenſe multitude of phenomena may be yet diſcovered, we muſt go on inquiring, and neither be haſty in forming a theory, nor preſumptuous enough to imagine that we may find a perfect one, by combining the materials hitherto diſcovered.

In explaining the origin of ſeveral *accidental foſſils*, and accounting for the diſcovery of elephant's bones, and ſeveral animal and vegetable productions of foreign climates in the interior of our part of the globe, our Academician has recourſe to the DELUGE, and we think he may be eaſily brought to terms of accommodation with M. DE LUC on this ſubject. He differs, however, from that ingenious naturaliſt with reſpect to the variations in the bed and level of the ocean ſince that awful period: and as M. DE LUC's work is poſterior to the compoſition of M. DE LAUNAY's Memoir, we make no doubt but our Academician will weigh its contents with attention and candour. Whatever may happen, the Memoir before us is replete with curious details, and materials relative to foſſils in general, and thoſe of the Low Countries in particular; and it ſhews our Author to be a learned, intelligent, and careful obſerver.

HISTORICAL MEMOIRS.

Points of view relative to ſeveral branches of Belgic Hiſtory. By the ABBE NELIS. The effects which were produced upon agriculture and civilization in the Belgic provinces by the Roman ſettlements in the ſouthern parts of that country, the ſuſpenſion of the progreſs of agriculture by the incurſions of the barbarians, the advantages it derived from the conqueſts of the Franks, the diviſion of lands, and the eſtabliſhment of feudal tenures, abbeys, and monaſteries; the damages it received from the incurſions of the Normans in the ninth century, and its reſtoration two centuries after this period, are the ſubjects treated in the firſt part of this Memoir.——The ſecond contains an account

of the municipal conſtitution and privileges granted to the cities of the Netherlands.——All theſe ſubjects are treated with a brevity which they ſcarcely admit of.——The Abbé gives us only *points of view*, and the contents of his performance perfectly anſwer to the modeſty of its title.

A Diſſertation concerning the Counts of Louvain. By M. des Roches.

Critical Reflections on the Diplomas of Miræus. Firſt Memoir, containing *an Examination of the Teſtament of St. Remi*, whoſe authenticity is here proved by a dead weight of arguments.

An Extract of the meteorological Obſervations made at Bruſſels in the Years 1775 *and* 1776. By the ABBE CHEVALIER.

ART. V.

MEMOIRES *de l'Academie Imperiale et Royale des Sciences et Belles-Lettres, &c.* i. e. MEMOIRS of the Imperial and Royal Academy of Sciences and Belles Lettres at Bruſſels, Vol. III. 4to. 1780.

JOURNAL OF THE ACADEMY.

IN giving an account of the Memoirs, Letters, or Eſſays, mentioned under this Article, we ſhall only take notice of thoſe which are not to have any farther place in this or a ſubſequent volume: the others we ſhall meet with in the claſs of Memoirs.

This volume opens with an account which the learned Abbé MANN (whom we are always highly pleaſed to meet with) laid before the Academy, of his Tour to England, whither he went, principally, with a view to obtain full information of the methods diſcovered and employed by Mr. Hartley and Lord Mahon, to preſerve edifices of every kind from the fatal effects of fire. His paſſage through Dover engaged him to obſerve the cliffs with the attention of a naturaliſt, and finding them compoſed of regular, alternate, and almoſt horizontal ſtrata of chalk and flint, he concluded that the flint-ſtones are no more than an *attractive filtration* of the fluor of chalk, hardened and petrified in proceſs of time, and formed into ſeparate maſſes by the mutual attraction of the parts of the fluor before its petrefaction. He attributes this formation to the *pyrites* that are often found in the ſtrata of chalk; and his illuſtration of this ſubject is ample and curious. This is followed by a hiſtory and deſcription of the *Gymnotus Electricus*, or Electric Eel, in Mr. Walch's collection.

The ſame Academician read a Latin diſcourſe *concerning the Origin and Progreſs of Moral Philoſophy, or the Science of the Law of Nature and Nations, and the neceſſity of reforming this Science, and cultivating it with more zeal in the Romiſh Univerſities*;—to which is added, *a critical Account of the principal Writers of this*

Claſs.——We heartily wiſh the publication of this piece, which is put off *ſine die.*

Prince GALLITZIN, Ruſſian miniſter at the Hague, whoſe political leiſure is conſecrated to the culture of ſome branches of experimental philoſophy, communicated to the Academy ſome curious Memoirs of M. Achard, on the fuſion and chemical analyſis of rubies and other precious ſtones, on the fluor of ſpar, on the uſe of oil in calming the waves of the ſea, and on a new manner of hatching eggs by the means of electricity. The Prince added his own experiments on inflammable air, and his Memoir *on Electrical Kites*, which are curious.

Reflexions on the Auroræ Boreales *obſerved during the Year* 1778. By the Abbé CHEVALIER.

Experiments on fixed Air employed as a Remedy in putrid fevers, by M. JANSSENS, M. D. *in the village of Ooſterhout near Breda, with remarkable ſucceſs.* It is true, the Peruvian bark was employed at the ſame time, and to it Dr. JANSSENS attributes a great part of his ſucceſs; but Prince *Gallitzin*, who communicated theſe experiments to the Academy, and who is a zealous champion for the reputation of *fixed air*, pretends that it enters as a principal ingredient in the bark: this, at leaſt, we ſuppoſe to be the meaning of his expreſſion when he ſays—that the Peruvian bark is *a compound of fixed air*, though the expreſſion is inaccurate. However that may be, the beneficial effects of fixed air in fevers have been aſcertained by ſeveral experiments and caſes, and the learned and ingenious Profeſſor VAN SWINDEN of Franekar, whoſe teſtimony has all the weight that *veracity* and *penetration* can give to any man's word, is brought by Prince *Gallitzin* as a witneſs in this matter. A niece of that Profeſſor, who had been afflicted during the ſpace of five months with a violent fever, which obſtinately reſiſted the influence of every remedy, and even the ſtrongeſt doſes of the bark, was cured completely by fixed air, as appears from the Profeſſor's letter to the Prince. The Profeſſor and the Prince have been admitted members of the Academy of Bruſſels.

The Count DE FRAULA read to the Academy *Obſervations on the Invention of wooden Types, occaſioned by a Paſſage in Sozomenus.* This Hiſtorian tells us, that Didymus, profeſſor in the celebrated ſchool of Alexandria, who had made an extraordinary progreſs in almoſt all the ſciences, though he had been blind from the age of three years, learned to diſtinguiſh the letters of the alphabet by handling characters engraven on wood. Theſe characters were moſt probably moveable, and our Academician ſhews from this, how near they were to the diſcovery of printing in the fourth century.

The reſt of this Journal contains the choice of new members; the

the ſubjects propoſed for Prize-Diſſertations; and the notice of Memoirs that will be publiſhed in ſubſequent volumes.

MEMOIRS.

A LETTER *from Prince* GALLITZIN *to the Academy, concerning the Form of Electrical Conductors.* The Prince propoſes (as he himſelf ſays) in this Letter, to bring about *a reconciliation* between three different opinions, by experiments deſigned to ſhew which of the three *merits the preference.* This is a way of *reconciling*, that is not likely to be agreeable to all the parties; however that may be, the caſe is this: The King of Pruſſia conſulted the Academy of Berlin concerning the form that ought to be preferred in the termination of electrical conductors. M. Achard recommended the ſharp-pointed conductor as better adapted to receive and throw off the electrical fire, than thoſe that are terminated by blunt ends or flat ſurfaces. He even multiplied the points at the end of the conductor; but farther experiments engaged him to recede from this method, and to recommend, as moſt eligible, conductors terminated by a plane ſurface, by a plate of metal. *C'eſt donc pour concilier ces differens avis* (ſays the Prince) *que jai crû devoir faire, de mon coté, des experiences, qui puſſent conſtater un jour, lequel des trois merite la preference.* The reſult then of his experiments is, that the *pointed* conductors ought to be preferred before all other forms, though he thinks the debates concerning the forms in queſtion are of little importance.

Memoir. *Concerning the Foſſils in the Tourneſis or Diſtrict of Tournay, and Petrifications in general, conſidered with reſpect to their utility in civil Life.* By the Abbé WITRY. The reſearches of our Academician in the quarries of Tournay will contribute, no doubt, to complete the collections of naturaliſts, by pointing out to them native and accidental foſſils, which are only to be found there, or, at leaſt, are very rare elſewhere. This is alſo one of the principal things which he has in view in theſe inquiries, the utility of which he thinks may be deduced from the properties of petrifications, and the purpoſes they *may* ſerve in agriculture and medicine.

Memoir. *Concerning the uſefulneſs of artificial Manure, together with an Analyſis of Dutch Aſhes, Corn land, Marls and Lime, conſidered in their property of improving and manuring a Soil.* By the Abbé MARCI. The experiments of this Academician on different kinds of manure, ſeem to have been carried on with uncommon capacity, aſſiduity and attention, and their reſults muſt be intereſting to the cultivator.

Memoir. *Concerning Wool.* By M. DU RONDEAU. This Memoir deſerves particular attention, as its ſubject is of great importance to one of the eſſential comforts of human life, and as that ſubject is treated by M. DU RONDEAU in a very ample

and maſterly manner. We ſhall therefore attempt a ſhort analyſis of this uſeful Memoir, which conſiſts of fifteen *articles*.

In the *Firſt Article*, our Academician treats of the growth of wool, which is always of the ſame colour with the *corpus reticulare*; conſiders the different layers or fleeces of which the ſheep-ſkin is compoſed; ſhews that the fineneſs of the wool is in exact proportion to the thickneſs of the ſkin, which depends upon the health of the animal, and the denſity of the air; and proves that the different kinds of wool derive their diverſity from the different degrees of condenſation which the air contracts from different degrees of cold or moiſture.

As the health of the animal contributes ſo conſiderably to the quality of the wool, a proper attention is due to the temperature of the air, climate, and ſoil, whoſe influence on its health muſt be very great, as alſo to its food and manner of living. As the animal in queſtion lives in warm and in cold climates, in dry and humid regions, in hilly and flat countries, ſo the effects of theſe different ſituations, and the different precautions they require muſt be carefully attended to; and theſe effects and precautions are pointed out by our Academician in the ſecond Article.

In the third he conſiders the ſtate of the fleecy flocks in the time of the ancient Gauls, when Belgic wool, as we learn from *Horace*, *Strabo*, and *Pliny*, was preferred to that of Apulia and Calabria. This our Author ſeems to attribute to the conſtant enjoyment of a free air, which the flocks had under the rough and untutored *Belgi*, who wandered from place to place, and neither made uſe of folds for their ſheep, nor ſcarcely of any tolerable habitations for themſelves. He does not, however, affirm, that the Belgic wool degenerated when this people were obliged to lead a ſedentary and more civilized life under the domination of the Romans, and when they were forced to ſhut up their flocks during the night, to defend them againſt the ſudden incurſions of the Germans: he derives the decline of this branch of Flemiſh opulence from the continual wars that ravaged the Flemiſh territories under the kings of France of the firſt and ſecond race; and though he allows that it was revived, for a time, under the firſt princes of the Houſe of Burgundy, yet he obſerves, that it was afterwards ruined by the civil wars, by the revolt of the Hollanders, and by other cauſes.

To this decline, the rival cultivation of this important branch of rural œconomy among the Spaniards and Engliſh did not a little contribute, as we ſee in the *two* ſucceeding Articles. The attempts that the Spaniards made, ſo far back as the times of the Romans, to improve their wool, by coupling African rams with Iberian ewes, produced remarkable effects; but their ſucceſs, for want of proper care, was momentary. The attempt

was,

was, however, renewed by Dom. Pedro, fourth King of Caſtile, with ſucceſs, and this is the origin of that fine breed of ſheep that principally conſtitutes the opulence of old Caſtile, which, having alſo declined through the incapacity and ſtupidity of the keepers, was reſtored to its vigour by the care of Cardinal Ximenes, and has been ſince ſpread through all the parts of Spain, whoſe paſtures are of the ſame nature with thoſe of Segovia. The free uſe of air, and the diſuſe of folds, have contributed much to the conſervation of this excellent race, and the Spaniſh ſhepherds have conſtantly perceived a diminution of the quantity of their ſheep, and a diſadvantageous change in the quality of their wool, when they have been obliged, by any particular circumſtances, to ſhut up their flocks in folds.——The Spaniſh nobility leave no means unemployed to perpetuate the advantages they annually receive from the ſheering of their ſheep, and they celebrate this kind of harveſt with feaſts and rural ſports.

The Engliſh wool began to be in repute about the middle of the fifteenth century. Three thouſand ſheep were tranſported to England from Caſtile; and that race was propagated with ſucceſs. What our Author relates with regard to the Engliſh and Iriſh ſheep-walks, conveys no facts or ideas with which thoſe who know any thing of this matter are not already ſufficiently acquainted.

The attempts of the French, and of their great miniſter *Colbert*, to form a breed in France, which failed by their depriving their flocks of the free uſe of the air, are related in the ſixth Article. It is ſingular, that the French, whoſe climate is ſo mild, ſhould fall into this erroneous method, when it is well known, that the Tartars of Great *Thibet* or *Boutan*, whoſe wool is beautiful and in high requeſt, never fold or confine their ſheep, though the air of that region is extremely cold, and the earth is covered with ſnow above five months in the year.

The preſent ſtate of the Flemiſh flocks, the abuſes that are to be reformed, the obſtacles that are to be removed, the information that is to be acquired, and the rules that are to be obſerved in cultivating the breed, in order to improve the wool, and to reſtore this branch of rural œconomy to its former ſtate of perfection,—theſe are the objects which our Academician diſcuſſes in the remaining articles of this uſeful Memoir. The wether of Flanders is of the largeſt kind known in Europe; this breed was brought by the Dutch from the Eaſt-Indies in the 17th century; and its wool is almoſt equal to that of the Engliſh in length, whiteneſs, fineneſs, and ſtrength. The attempts to raiſe this breed in England did not anſwer expectation; but it ſucceeds in ſeveral parts of Holland, and muſt proſper, as our Author thinks, in Brabant, Hainault, and ſeveral diſtricts of Flanders, if the proper methods of treating it be carefully employed.

Our Author points out theſe methods in an ample and inſtructive detail, comprehending the choice of new rams to croſs the breed, the choice of paſtures, the allowing the flocks to lead a free, wandering and ſavage life (as far as climate, ſoil, conveniency, and the nature and kind of the animal will permit), and a competent meaſure of knowledge in the huſbandman to correct the errors and prejudices of the ſhepherd. Upon the whole, our Academician recommends the Engliſh method of managing ſheep as the moſt eligible, and the beſt adapted to reſtore to the Flemings this lucrative brance of commerce, which the Engliſh and Spaniards carried away from them.——This he often repeats with a certain degree of acrimony, or at leaſt with a keen deſire of making repriſals. This latter is allowable—the rival attempts of the Engliſh were lawful—the Flemiſh attempts to recover what they have loſt are lawful alſo—for after all—*charity begins at home.*

Memoir. *Containing Hydraulic and Mineralogical Reſearches in the Diſtricts of Tournay and Auſtrian Hainault.* By the ABBE D'EVERLANGE DE WITRY.

Memoir. *Concerning the Medical Leech.* By M. DU RONDEAU. The ample deſcription of this animal, and the ingenious experiments made upon it with the air-pump, are intereſting and curious.

ASTRONOMICAL OBSERVATIONS *made at Louvain.* By Mr. PIGOTT, Fellow of the Royal Society of London, Correſpondent of the Academy of Sciences at Paris, &c. This Memoir contains Obſervations of the Satellites of Jupiter in order to aſcertain the longitude of Louvain.

OBSERVATIONS *of an Eclipſe of the Sun on the 24th of June* 1778, *made at Bruſſels.* By the ABBE CHEVALIER,—at Paris in the obſervatory of *the Marine, by* M. MESSIER, member of the academies of Paris, London, Bruſſels, &c.——At Bruſſels, by the Baron de POEDERLEE.

OBSERVATIONS *of Four Satellites of Jupiter, made at Paris at the Obſervatory of the Marine, during the Year* 1777, *with an excellent Achromatic Tel-ſcope of Three Feet and a Half, with Three Lenſes for the Object-glaſs, which magnified* 120 *times.* By M. MESSIER.

Memoir. *Concerning the poiſonous Quality of Lead.* By M. DE BEUNIE. There is nothing new in this Memoir to thoſe that have even a ſuperficial portion of medical knowledge; its peruſal will, however, be uſeful to multitudes, as the generality are too little on their guard againſt the dangers with which the uſe of this imperfect metal, or of ſubſtances mixed with it, is attended. *Boerhave, Henckel, Hoffman, Gaubius,* and many more celebrated chemiſts have loudly proclaimed the pernicious effects of lead, and repreſented it as containing a ſlow poiſon, which

which is ſo much the more dangerous, as neither its colour, ſmell, nor taſte, admoniſh us of its noxious qualities, as copper does, by its green hue, its diſagreeable odour, and its ſtyptic ſavour. Examples, facts, and experiments, that leave no doubt concerning this ſerious matter, are exhibited with the moſt ſtriking and frightful degree of evidence in the Memoir now before us. The monſters who have made uſe of the litharge, or other preparations of lead, to dulcify the ſmall Rheniſh wines, and prevent them from ſouring, are here particularly ſtigmatized, and *Zeller*'s method of diſcovering this abominable practice, is particularly deſcribed. The method is well known: it conſiſts in throwing ten or twelve drops of a compoſition of yellow orpiment and quick-lime into a glaſs of Rheniſh wine: if, on making this experiment, the wine changes its colour, and becomes ſucceſſively dark, reddiſh, brown, and black, this is an evident proof of its being adulterated by a preparation of lead.

Memoir. *Concerning a Method of correcting the tinning of Copper Veſſels in uſe at preſent, until ſome other more proper Subſtance for Kitchen Utenſils is ſubſtituted in its place.* By the Abbé MARCI. The danger of uſing copper, without its being tinned, is ſufficiently known, and the danger, though leſs, that the uſe of tinned veſſels may be attended with, ariſes from the mixture of a certain quantity of lead with the tin in the operation of tinning. The tinners pretend that this mixture is neceſſary: our Author, therefore, propoſes to correct it thus. He recommends the uſe of Engliſh block-tin alone for this operation. "When "the block-tin (ſays he) is melted in a cone of iron, and left "to cool without ſhaking it, the lead *, which is heavier than "the tin, will be precipitated to the bottom of the cone, and "thus a finer metal, leſs charged with lead, and conſequently "leſs fuſible, will be obtained. This method of tinning gives "the metal employed a purer white, from its being leſs charged "with lead: it renders the tinning more ſolid by the removal "of a conſiderable quantity of lead, which gives it too great a "tendency to fuſion. A veſſel thus tinned bears the heat of "the confectioner's oven without melting." Our Author enumerates other advantages of his method of tinning, and then deſcribes the manual part of the operation:—but we proceed no farther, as we do not find (perhaps it may be our fault) in this Memoir the perſpicuity and preciſion which the ſubject requires. If our Author is ſo convinced of the danger of lead, why does he not rather recommend tin, which has no mixture of that metal for the operation of tinning? The pewterers ſay that this

* We did not know that *block tin* had in it a mixture of lead: this is the caſe of the common tin which pewterers ſometimes ſell, and in which there is frequently as much lead as pure tin.

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is not practicable,—and he has not proved the contrary. He tells us, indeed, that a pewterer at Bruſſels has ſucceeded perfectly in the new method, and offers to perform the operation in queſtion with *pure tin* for a penny more than is paid for the ordinary method. To what quantity of work or materials this penny is ſuperadded, we know not; nor does the Author tell us: but he tells us, that this man is dexterous at the buſineſs, and is capable of purifying the Engliſh *block tin* from a *good part of the lead* which has been added to it.—— So that, after all, we have ſtill a portion of lead, even in our copper-veſſels, which are tinned after the new method; and ſince only a *good part* of the lead is removed, a *good part* of it may ſtill remain.——Were all this clear and ſatisfactory,—there is another point, which our Author has not touched, and which is nevertheleſs worthy of attention on this ſubject, we mean the danger that may attend even the uſe of *pure tin*, if it be true (and M. *Margraff* has proved it to be ſo), that it contains almoſt always more or leſs of an arſenical matter, proceeding from the ores in which it is found. Theſe generally contain arſenic, which, in the melting, eaſily unites itſelf with the tin, and cannot be ſeparated from it without the greateſt difficulty *.

Memoir. *Concerning the ſingular Generation of a kind of* Gryllus (an Animal of the cricket or locuſt kind), *which is a new inſtance of the Analogy between the Animal and Vegetable Claſſes* (or *Reigns* as the French call them). By the Count DE FRAULA. This animal (we mean the female) lays her eggs in a cod or huſk like that of pulſe or peaſe, and this circumſtance conſtitutes the analogy between this generation and that of peaſe and other vegetables.

A DISSERTATION, *in which it is propoſed to determine preciſely the Port in which Julius Cæſar embarked for England, and the Port in England where he landed, as alſo the day when this happened.* By the Abbé MANN. The reſult of this Memoir, in which there is a rich diſplay of erudition and critical acuteneſs, is, that Cæſar ſet out from *Boulogne* (Portus-iccius) at midnight, and came before *Dover* between nine and ten in the morning the 26th of Auguſt in the year 55 before the birth of Chriſt, and paſſing the Foreland landed at *Deal*, the day following before ſun-riſe. The merit of this Memoir does not conſiſt in the diſcovery of places of embarkation, and landing, different from thoſe hitherto mentioned by hiſtorians, but in deciding and aſcertaining a point that has been obſtinately and *heavily* debated, and delivering it from the uncertainty and ambiguity in which it

* M. Margraff has alſo proved, that all the vegetable acids act on tin, and diſſolve a part of it. See MEMOIRS *of Berlin* for the year 1747.

was

was involved by a variety of opinions and a cloud of philological, but jarring and diſcordant witneſſes.

Memoir *relative to the Hiſtory of King* Zwentibolche, *Prince-Sovereign of Lotharingia, or of the Kingdom of* Lothier, *drawn from the Authors and Records of that Time, in which alſo there is an Account of the Charters and Diplomas that were iſſued out during the Reign of that Prince.* By M. DE HESDIN.

RESEARCHES *undertaken with a view to diſcover the Theory of Language.* By the Count DE FRAULA. It muſt be acknowledged, that this learned inveſtigator has not built a caſtle in the air in forming his theory; for his voyages through the motley region of language, to ſeek both foundations and materials for his edifice, have been, as it would ſeem, laborious and not unſucceſsful. As to the edifice we cannot ſee it very clearly, for the weather is particularly miſty in that quarter, and the rays of evidence undergo refractions that cannot but render us ſomewhat diffident of appearances. It is, indeed, amazing to think what pains this Academician has taken. Finding the Engliſh, Flemiſh, Daniſh, Swediſh, Norwegian and German languages to be dialects of the Teutonic, and perceiving that the ancient Moeſogothic, Suigothic, Anglo-ſaxon, Sicambrian, Greek, Latin, and all the modern languages of Europe, were reducible to the ſame ſtandard, and derived their origin, in a manner reſpectively, more or leſs remote from the language of the ancient Scythians (the *firſt colonies* that peopled Europe), he has examined all theſe languages, and aſcertained their affinities. This is not all: his curioſity led him to trace the Scythian language to its origin, and for this purpoſe he ſtudied with Herculean labour, the languages of Perſia, Turkey, Hungary and Tartary; the Arabic and Hebrew did not eſcape his reſearches, and he peruſed with attention all that M. Anquetil has written concerning the *Zend* and *Pehlvi*.

Enriched thus with ample materials, our very learned Academician unfolds his theory, preceded by fifteen axioms, from which he draws a variety of conſequences, tending to prove and illuſtrate it. For this curious part of his Memoir, we muſt refer the Reader to the work itſelf. To give, however, ſome idea of this theory, it will be ſufficient to obſerve, that in a table, which ocupies 53 quarto pages, our Author points out the progreſs of language with reſpect to the nomenclature of the term that expreſſes a *dwelling*, and the application of that term, with its variations, to different kinds of dwellings, and to objects that have an affinity to that idea. For example, 1ſt, From the Hebrew word *hets* (a tree) all the others proceed: the firſt covering that man had, even in Paradiſe, was the ſhadow of a tree, and all the other coverings which he procured afterwards, were only ſo many ſubſtitutions to this. 2dly, New names were not invented

vented for new dwellings. 3dly, The name of the ſmalleſt dwellings was applied indiſcriminately to the largeſt. 4thly, Dreſſes and utenſils were conſidered as kinds of dwellings, and were ſo denominated. To illuſtrate this, the word *hets* is exhibited in its propagation through 75 languages, and the affinities of its ſignifications are pointed out in the vaſt table already mentioned. Our Author thinks that the periods and countries, in which the particular inflexions and variations of the name of a *dwelling* took place, may poſſibly be diſcovered by a ſecond table, which he propoſes publiſhing at the end of his examination of the geographical names of cities.——We hope this ſecond table will be more correctly printed than that now before us, to which are ſubjoined *ten* pages of preſs errors.

We ſhall not pretend to appretiate the merit or utility of the kind of erudition that is laviſhed with ſuch an able and laborious hand in this Memoir, and in the analogical table; but we cannot help expreſſing our ſurpriſe at a multitude of the pretended derivations which the latter exhibits. We followed *hets* with *pleaſure* through a few pages, where we found it extending to a conſiderable diverſity of analogical objects, without loſing much of its eſſential and primitive form: we followed it with *patience* when even its children and farther poſterity had loſt almoſt all the features of their parent; but when, proceeding farther, we found *hets* repreſented as propagating (by ſubſtitutions, interpoſitions, different prounciations of conſonants, &c.) *keichen*, *cuts*, *kæpp*, *ceud-wyl*, *kuckz-ka*, *klo-bouck*, *cum*, *pot-wika*, *pohiſvo*, *doos*, *tobb-eken*, and ſome thouſands of other ſuch diſſimilar and heterogeneous terms, we could not help looking upon theſe either as ſuppoſititious children, or monſtrous births. We may, however, be miſtaken.

SUMMARY REFLECTIONS *on the formation of a Plan for a General Hiſtory of the Auſtrian Netherlands.* By the MARQUIS of CHASTELER. The noble writer diſcuſſes, with judgment, in this Memoir, the following queſtions: at what period the hiſtory of the Auſtrian Netherlands ought to commence?——Whether it be adviſeable to compoſe a particular hiſtory of each province, or to comprehend the whole in one general hiſtory?——Whether it be expedient to treat ſeparately the points relative to the conſtitution, manners, cuſtoms and religion of the Netherlands, or to enlarge on theſe important objects occaſionally, and in their connection with the courſe of events?

AN HISTORICAL AND PHYSICAL *Memoir concerning the* Orichalcum *of the Ancients, to which are prefixed ſome Obſervations on the Lapis Æroſus* of Pliny. By M. DE LAUNAY. Our Author here corrects an error of Pliny, who, taking the native *Cadmia* or calamine for a copper ore, obſerves, that, in his time, this metal was ſaid to be found in the Belgic provinces. He alſo proves,

proves, that the *Orichalcum* of the ancients, was a mixture of copper and calamine, or the *lapis calaminaris*, and that it was not in ſuch high eſteem, as many (who ſuppoſe it to have been a mixture of gold and copper) have erroneouſly imagined.

Memoir. *Containing an Examination of the Opinion of ſeveral ancient and modern Authors, who maintain that there was formerly a Communication between the Euxine, Caſpian, Baltic, and White Seas.* By the Abbé MANN. In treating this ſubject, which is worthy of particular attention, on account of its connexion with the theory of the earth, our Academician begins by laying before his readers a ſummary of what preceding writers have ſaid on the matter, and afterwards examines the *phyſical* objects, actually exiſting, which are adapted to clear it up. The reſult of all is; that the ancient junction of theſe ſeas is ſufficiently aſcertained.

RESULTS *of the Meteorological Obſervations, made in* 1778, *at Franeker in Frieſland.* By Profeſſor Van SWINDEN. This Memoir contains an hundred pages.

Memoir. *Concerning a Method of meaſuring the Degree of Quickneſs with which Ice thaws.* By the Count de FRAULA.

RESULTS *of the Meteorological Obſervations made at Bruſſels*, during the Year 1778.—EXTRACT of the Meteorological Obſervations made at Bruſſels during the Year 1779. By M. du RONDEAU.——Theſe two tables terminate this Third Volume.

ART. VI.

Tableaux Topographiques, Pittoreſque, Phyſiques, Hiſtoriques, Moraux, Politiques, Litteraires de la Suiſſe; *i. e.* Topographical, Pictureſque, Philoſophical, Hiſtorical, Moral, Political, and Literary Deſcriptions of Switzerland. 2 Vols. Large Folio. Paris. 1780.

THIS great Work, which contains a rich and extenſive fund of inſtruction and entertainment, belongs to a ſeries of 1200 prints, elegantly engraven, and exhibiting Views of SWITZERLAND and ITALY, which were publiſhed ſucceſſively in Numbers at Paris in 1777, and the years following. The two volumes before us relate to Switzerland alone. They contain an ample and circumſtantial account of the phyſical and moral ſtate of that intereſting country, the principal lines of its hiſtory, a deſcription of the government, manners, arts, and cuſtoms of its reſpective Cantons, the characters of the eminent men whoſe names ſhine in its annals, and views of the ſtupendous aſpects of nature, and its rich productions, in that ſingular region.

At the head of the firſt volume we find *A Diſcourſe concerning the Natural Hiſtory of Switzerland*, which is principally deſigned to point out the nature of the different ſubſtances which compoſe

thoſe enormous mountains that are accumulated one upon another; and, riſing gradually, have their ſummits ſupported by ſtupendous maſſes of rocks, covered with eternal ſnow and ice. The borders of the Lake of *Geneva*, the ſalt pits of *Bevieux*, the caſcades and torrents of *Piſſe Vache* and *Trient*, the round flints (galets) that are rolled from the tops of the mountains, and cover conſiderable ſpaces at the foot of the *Glacieres*, and the famous mountain of St. Bernard, its environs, and its hoſpital (or rather hoſpitable manſion), are the firſt objects we meet with here. The account of this famous hoſpital, its ſituation, and the diſintereſted benevolence of the humane Monks whoſe lives paſs in acts of compaſſion to the miſerable, is intereſting and affecting. This is followed by a deſcription of the *Vallais*, and the courſe of the Rhone, which exhibits inſtructive and entertaining details of natural hiſtory, pleaſing repreſentations of the habitations, manners, occupations, contentment, and tranquility of the inhabitants of the mountains, and an ample account of thoſe ſtupendous maſſes of ice and ſnow (called *glaciers* and *glaciéres)*, which, though to the ignorant ſpectator they bear no marks of utility, have, nevertheleſs, a manifeſt influence on the temperature of the globe, and thus evince the wiſdom and goodneſs of the Author of Nature. Theſe aſtoniſhing maſſes of ice, whoſe origin and formation are amply and circumſtantially deſcribed in this work, are immenſe magazines of pure and ſolid water, which nature keeps in reſerve to repleniſh ſeveral of the great rivers of Europe, and diſtributes proportionably to their reſpective wants. The melting alſo of theſe maſſes of ice maintains, in ſummer, that freſhneſs and moiſture in the atmoſphere, ſo neceſſary to the vigour and vegetation of thoſe excellent paſtures, which conſtitute the peaceful opulence of the inhabitants of the mountains. It is curious to ſee the beautiful and numerous flocks aſcending the mountain in proportion as the ſnow diſappears, following the productions of the ſpring which increaſe, and as it were riſe anew to life, before them from day to day, until the point of time when the ſnows of Autumn oblige them to retire, and to live, during winter, on the forage that has been gathered in the lower valleys, where the ſame coolneſs and the ſame waters have procured them three or four crops of proviſions. It is alſo from theſe icy mountains, that Switzerland derives its mineral waters, its hot ſprings, its cryſtal mines, and its cold baths, which are uſed with ſuch ſucceſs in many diſorders. One of the firſt phenomena that ſurpriſes the traveller on his arrival at the *Glaciéres* in ſummer, is to ſee at the foot of the Glacier, and on the borders of the valley, which it has filled with enormous maſſes of ice, green paſtures, trees, and a fruitful ſoil much higher than the ice. This ſhews that the prodigious maſſes of ice, in queſtion, muſt have been formed

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in a higher region, and have deſcended from thence into the valleys which they have filled, and converted into mountains of ſolid water. How this deſcent has happened it is eaſy to conceive: in ſpring and autumn, when it rains at the foot of a mountain, it ſnows at its ſummit, or at its heights. The ſnow melts in ſummer towards noon, but freezes again at night: thus the water is changed from ſnow into ice; this is, at leaſt, the caſe with the ſurface, which has been melted. Theſe collections of ſnow and ice, accumulated on the ſteeps and precipices of the mountains, are drawn downwards by their weight, and deſcend into the valleys and low grounds, which they raiſe almoſt to a level with the mountains, forming layers, or cruſts of ſnow and ice, which extend to a great diſtance. The *Glaciere* which ſeparates the Canton of Bern from the Vallais, is thirty (French) leagues in length. When theſe enormous maſſes of ſnow have filled up the valleys, and by alternate freezing and thaws have been converted into ice, the new parcels that come down ſucceſſively, ſlide over the preceding maſſes, and deſcend like torrents on the cultivated lands. Theſe latter *overflowings* (if we may uſe that term) form what the natural hiſtorians of Switzerland call the *Glaciers*, which they diſtinguiſh from the *Glaciéres*. In the remaining part of this Diſcourſe, our Author brings us to the famous mountain of St. *Gothard*, of which he diſplays all the wonders, deſcribing its natural curioſities, its temperature, its cryſtal mines, the mountains that ſurround it, and the rivers that have their ſources in its neighbourhood. From thence he conducts us by the Lake of the Four *Waldſtætt* or *Foreſt Cantons*, where the chapel of TELL, the heroic founder of Helvetic liberty, is ſtill beheld with veneration, and where the boatmen ſhew, with patriotic pride, the place where the four illuſtrious friends confirmed by oath the firſt confederation on which the free conſtitution of the Thirteen Cantons was founded. In the middle of this lake we find *Gerſaw*, the ſmalleſt republic in Europe, whoſe territory is but two leagues in length, and one in breadth; and all whoſe male inhabitants who have arrived at the age of ſixteen, are entitled to a place in the general aſſembly, conſiſting of about 300 perſons. Our Traveller, and his companions went to viſit this little town, and, going into a public houſe, found an advertiſement expoſed to view, in which there was a prohibition to drink or play at any kind of game, with two perſons of the place, whoſe names were mentioned, and the reaſon of this prohibition was, that one of theſe perſons was ſometimes drunk, and the other quarrelſome. Happy, ſay we, thoſe little towns and ſtates, where the morals of each citizen are under the eye of the public; happy, at leaſt, in compariſon with thoſe enormous cities, where each individual cannot be an object of attention to the community,

community, and where vice, of conſequence, may not only have innumerable aſylums, but may even riot in obſcurity at noon-day!

The environs of *Lucerne*, *Soleure*, and *Berne*, the valley of *Lauterbrun*, and the famous caſcade of *Staubach*, the *Glaciers* of *Grindelwald* and *Roſenlavi*, the route of *Engelberg*, by the Cantons of *Underwald* and *Schweitz*, to *Einſidlen*, or *our Lady of the Hermites*, as alſo the route of *Glaris* by the country of the *Griſons*, to the ſources of the Rhine, and the paſſage from thence through *Truns*, *Ilantz*, *Richenau*, *Coire*, *Trogen*, *St. Gall*, *Zurich*, *Scaffhauſen*, *Waldſhut*, *Lauffenburg*, and *Rhinsfeldt*, to *Baſil*; furniſh rich materials for the natural hiſtorian, and ſublime landſcapes for the poetical painter: and neither of theſe kinds are neglected in this Diſcourſe.

Among the multitude of ſingular and ſtriking objects that preſented themſelves to M. LABORDE in this philoſophical excurſion, we cannot help mentioning the *Martis-Loch*, or hole of St. Martin, bored through the ſummit of the mountain of *Falzaber*, by which the Sun in the months of March and September enlightens the ſteeple of the village of *Elm*, in the Canton of *Glaris*. This natural meridian is remarkable. The hole in the mountain is round, and, when ſeen from the village *appears* to be about three feet in diameter. On the 3d, 4th, and 5th of March, and the 14th, 15th, and 16th of September (old ſtile) the ſun paſſes behind the hole; its whole diſk is ſeen the 4th and the 5th, and then it caſts its light on the ſteeple of *Elm*. The inhabitants maintain that the hole is very large, and that its *real* diameter is about 25 feet. It is eaſy to judge of the height of this mountain, ſince the village of *Elm*, which it covers, is deprived entirely of the ſight of the ſun during ſix weeks of the winter ſeaſon. How ſtrange ſuch a country in the centre of Europe.

The Deſcription of SWITZERLAND that follows this Diſcourſe, is a very learned and extenſive work, comprehending amply what the title announces, and drawn from all the beſt ſources of information, ancient and modern, which are mentioned in notes, full, perhaps too full, of erudition. It conſiſts of forty-five ARTICLES. In the firſt SIX, we have an account of the ſituation of the country, the origin of its names, its elevation above the other countries of Europe, its Alps, Mountains, and perpetual *Glaciéres*. In the deſcription of theſe latter (the icy-mountains) our Author has followed *Gruner*. The ſources of the Rhine, the Rhone, and other great rivers, which are repleniſhed by the Glaciéres or icy-mountains, and direct their courſes through the Helvetic territories, form the ſubject of the two following articles. In the EIGHTH and NINTH the five great lakes of Switzerland, and nine others of a ſecond rate, are particularly

deſcribed. In the Fourteen ſucceeding Articles the Author treats of the mineral waters, ſalt-pits, mines, caverns, and water-falls of this ſingular country, of the diverſity of its climate in the northern and ſouthern parts, of its earthquakes, and other phenomena, of the nature of its ſoil, of its rural improvements, grain, vineyards, fruit-trees, plants, vulnerary herbs, paſtures, ſtuds, foreſts, woods, quarries, marl-pits, animals, fiſh, reptiles, inſects, and petrifactions. The Seven following Articles give a curious account of the population of Switzerland, of the languages ſpoken in that country, of the reſpective limits of the Reformed and Roman Catholic religions, and a very candid and intereſting portrait of the proteſtant and popiſh clergy. We find here alſo ample details, relative to the biſhopricks, abbeys, convents, and commanderies of the Romiſh Cantons, and to the eccleſiaſtical conſtitution of the Proteſtant States. The diviſion of the Helvetic Body into cantons, co-allies, and allies; the ariſtocratical, democratical, ariſto-democratical States, and thoſe which have a form of government approaching to monarchy, are circumſtantially and accurately deſcribed in the FIVE following Articles. The thirty-ſixth and the *ſix* ſucceeding Articles treat of the political ſyſtem of the Helvetic confederacy, of its general and particular diets or aſſemblies, of the different ranks and privileges of the ſubjects in each canton and ſtate, of the coin, revenues, militia, arſenals, public roads, &c. and the THREE Articles that conclude this great work, exhibit a view of the general connexion of Switzerland with the Empire, France, and the Houſe of Auſtria, and its particular connexions with the See of Rome, Spain, England, Naples, Savoy, Pruſſia, Venice, and Holland, as alſo of the employment of its troops in foreign ſervice.

A collection of Records, Acts, and Hiſtorical Diſſertations, is ſubjoined to this work, as proofs and illuſtrations of its contents, which form a rich and diverſified fund of natural, hiſtorical, political, and literary ſcience. The two volumes, which are of the largeſt folio ſize, contain above 400 pages, and we ſuppoſe, though without any authority, that it will be followed with ſimilar deſcriptions of the ſtates of Italy, correſponding with the prints and views of that country that are given in the collection above mentioned.

ART. VII.

Hiſtoire de l'Academie des Inſcriptions et Belles Lettres, avec les Memoires de Litterature, &c. i. e. The Hiſtory of the Academy of Inſcriptions and Belles Lettres, together with the Memoirs of Literature, taken from the Regiſters of that Academy, from 1773, to 1775, and a Part of 1776 incluſive. Vol. XL. 4to. Paris. 1780.

IN the hiſtorical part of this Volume (which is at preſent under the direction of M. *Dupuy*, who has ſucceeded M. *le Beau*,

Beau, as Secretray to the Academy) we find the ſubſtance of two Memoirs of M. de BURIGNY, *concerning that Taſte for the* marvellous, *of which the Greek and Latin Hiſtorians have been accuſed.* The other Memoirs which are abridged in this part, are as follows:

A Memoir, *concerning the religious, civil, and political Notions of the Ancients with reſpect to their Hair, and the Beard.* By M. GOUTIER de SIBERT. Theſe two objects ſeem to be of little conſequence; but when cuſtoms depend upon ſentiments and manners, or upon religious and political ſyſtems, they may deſerve attention, as connected with the hiſtory of human nature; and it is under this point of view that they are conſidered by M. GOUTIER. He has collected, from a multitude of volumes, all that has been ſaid upon theſe two ſubjects; ſo that antiquarians and philologiſts, as well as hair-dreſſers and barbers, will find here ample food for their curioſity. The beard ſeems to have been more unanimouſly reſpected in ancient times than long hair, though it appears ſomewhat ſurpriſing, that while philoſophy was treating it with the moſt profound veneration, *Scipio Africanus* ſhaved himſelf without fear or ſhame every day. Long hair was but an equivocal object of eſteem: when it hung, in filth and ſlovenly negligence, upon the ſhoulders, the fathers of the church treated it with regard; but when it was clean, neat, and graceful, it became an object of eccleſiaſtical cenſure; and when highly ornamented, both philoſophy and theology anathematized it with ſeverity, as a ſymptom of effeminacy, or a mark of reprobation.—

Memoir. *Concerning the political State of the Gauls, when they were conquered by the Romans.* By M. de BURIGNY.

Concerning the Life and Medals of Agrippa. By the Abbé le BLOND.

Illuſtrations and Conjectures concerning ſome ancient Roman Laws. By M. BOUCHAUD.

Reſearches concerning the City of Lamia, its Inhabitants, the Malians, and ſome of their Medals. By the Abbé le BLOND.

Illuſtrations concerning ſome Medals of Lacedemon, Heraclea, and Mullus; deſigned as an Anſwer to the Memoir of the Abbé le Blond. By M. DUTENS.

Inquiries concerning the Art of Diving among the Ancients. By the Abbé AMEILHON. From *ſwimming*, which this learned Academician treated in a preceding volume, to *diving*, which is the ſubject of the preſent Memoir, the tranſition is natural; and ſome will be ſurpriſed to find this latter art carried to ſuch a degree of improvement as it was in ancient times, if the hiſtorians do not exaggerate. Our Academician points out, firſt, the ſervices which divers rendered to the public: he ſhews, afterwards, how far they excelled in their art; and he enumerates, in the third place, the different means they made uſe of to facilitate

cilitate the exerciſe of their profeſſion, and to avoid the dangers to which they were often expoſed. Our Academician tells many wonderful ſtories of the ancient *divers*, who were employed on a multitude of occaſions, among others, to carry intelligence to and from beſieged cities, and even to put trouts clandeſtinely on Mark Antony's hook, when he was angling with Cleopatra, as Plutarch relates.

An Examination of the Opinion of J. Godfrey, concerning the Ceremony of conferring Liberty upon Slaves, as performed in the Churches.

OBSERVATIONS *on the Hiſtory, Records, and Monuments of Cæſarea in Cappadocia.* By the late Abbé BELLEY. Theſe Obſervations relate to the geographical ſituation and antiquity of the city in queſtion, to the fertility of its territory, its government under its own kings, and under the Romans, its religious worſhip, temples, feſtivals, ſacred games, medals, revolutions, and its preſent ſtate.

A Diſcourſe concerning the Paſſion of Gaming, in different Ages. By M. DUSAULX.

Obſervations on a MS. in the King's Library, which contains the Songs of the TROUBADOURS *of Swabia or Germany, from the End of the 12th Century, to the Year* 1330. By the Baron ZURLAUBEN. The hiſtory of this Manuſcript, and a deſcription of the figures with which it is ornamented, as relative to the cuſtoms and manners of the time, form the contents of this firſt Memoir.

Indication of a Manuſcript which furniſhes ſome hiſtorical Details concerning Robert Count d'Artois. By M. DACIER.

The hiſtorical part of this volume is concluded by the Eulogies of the following deceaſed Academicians, compoſed by M. DUPUY; *Meſſrs. Fontette, Bignon*, and *Duclos*, the Abbé de la *Bletterie*, the Earl of *Cheſterfield*, Meſſrs. *la Nauze*, and *Capperonier.*

XVII.—XXI. Memoirs. *Concerning the Phœnicians.* By the late Abbé MIGNOT. In theſe five Memoirs, the learned and voluminous Academician pours forth a profuſion of erudition upon the government and different revolutions of Phœnicia; and treats, alſo, very amply, concerning the laws and the military forces of the Phœnicians, their cities, edifices, domeſtic life, marriages, and dreſs.

Obſervations concerning certain Points, relative to the Religion and Philoſophy of the Egyptians and Chineſe. By M. de GUIGNES. This Memoir is deſigned to prove that, generally ſpeaking, the *Chineſe* were indebted for their knowledge to the *Egyptians*, and were in the groſſeſt ſtate of ignorance and barbariſm before their intercourſe with this latter people. The learned Academician proves, moreover, that it was not from the Indians, to whom an

extravagant antiquity is attributed by ſome, that the Chineſe received their civilization. The following learned and important Memoirs illuſtrate farther this curious point of erudition.

Hiſtorical Reſearches concerning the Indian Religion, and the fundamental Books of that Religion, which have been tranſlated from the Indian Language into the Chineſe. By M. de GUIGNES. Theſe curious reſearches are contained in *Three Memoirs*. In the *firſt* we have the hiſtory of the eſtabliſhment of the Indian religion in India, Tartary, Thibet, the iſles of the ocean, and in Japan; and in the *ſecond* and *third*, an account of its eſtabliſhment in China.—There is nothing more diſagreeable to an ardent inquirer, than the contradictory accounts which our (for the moſt part ignorant) travellers have given of the Indian religion. Our very learned Academician has therefore ſtruck out a new path to come at more conſiſtent and ſatisfactory views of this ſubject, and he has illuſtrated it by a multitude of facts, hitherto abſolutely unknown, which he has found where few would expect to meet with them, even in the books of the Chineſe. As 1700 years have elapſed ſince the eſtabliſhment of the Indian religion in China, it was natural to conſult the annals of the Chineſe on this ſubject. And here he was informed, not only that the Indians brought with their religion into China, a prodigious number of their books, which were tranſlated into the language of that country, but that the Chineſe, who on many occaſions, travelled into India, always brought back with them books, which, learned Indians, who were numerous in China, tranſlated alſo into the Chineſe language. Theſe facts authenticate the ſources from which M. de GUIGNES has derived his information. This information ſeems to us curious enough to juſtify our laying before our Readers a ſummary of the principal matters it contains.

It appears then that the perſon who civilized and inſtructed the Indians was *Chekia-mouni*, who was the founder of the philoſophical ſect of the *Samaneans*, and whoſe birth is placed by ſome in the year 1122, by others in the year 1027, and by others ſo far down as the year 688 before Jeſus Chriſt. Before *Chekia-Mouni*, the Indians were in a ſtate of groſs ignorance, and the Brahmines atteſt that they received all their knowledge from the Samaneans. If we fix the birth of this legiſlator, even at the firſt of the three epochas above-mentioned (from which the *Bagavadam* dates the eſtabliſhment of the Indian empire), it is certain that civilization and ſcience flouriſhed, more or leſs, in other nations before that period. It appears from the accounts of *Herodotus*, that the Indians were civilized but ſlowly and ſucceſſively, and from the records of the Chineſe, that the empire of Siam dates the earlieſt principles of its origin from the 4th century of the Chriſtian æra. The Chineſe

taught, about this period, the inhabitants of Siam to build houſes and cities, and the Indians brought thither their books, and their religion. The peninſula of Malaya (the *Aurea Cherſoneſus* of the ancients) was ſeized upon, in the fourth century, by an Indian Brahmine, who eſtabliſhed in it the laws and religion of his country; and it was, alſo, by the Brahmines, that a powerful kingdom was formed in the Iſle of Ceylan (the ancient *Taprobana)* which, though frequented long by the Greeks, Romans, and other Weſtern nations, for the purpoſes of commerce, had not a ſingle city in the time of *Eratoſthenes*, i. e. about the middle of the third century before Chriſt. The Chineſe books mention alſo ſeveral other iſles in the Indian ocean, ſuch as Sumatra, Java, and Borneo, where the Indians tranſplanted their religion, but in a late period. The Japaneſe, who carry the foundation of their monarchy as far back as the year 660 before the Chriſtian æra, acknowledge, that they derived their arts and ſciences from the Chineſe; but as they were not acquainted with the letters and books of this latter people, before the year 286 of the Chriſtian æra, we cannot date higher the real eſtabliſhment of the ſciences among them. The Indians carried with them their religion from China to Japan; where, however, it was not firmly eſtabliſhed before the middle of the ſixth century. As the Japaneſe make uſe of the Chineſe letters, they were furniſhed with the Indian books that were tranſlated in China. All this ſhews, that the countries, eaſt of the Ganges, were civilized ſlowly, and in a late period; and we have no proof, that, in any period, they carried the arts and ſciences ſo far as the Chaldeans, Phœnicians, and Egyptians, who had cultivated them long before.

As to the Tartars, they were always barbarouſly ignorant, more eſpecially while they continued in their own country, of which we have no hiſtorical records. Writing was unknown to them ſo far down as the Chriſtian æra. By their frequent conqueſts in China, they had occaſion to make ſome improvement in knowledge, and they availed themſelves more or leſs of this opportunity, while they were maſters of that country; but no ſooner were they driven from thence, into their native land, than they returned to their primitive barbariſm. About the year 162 before Chriſt, ſome hords of Tartars marched towards Bactria, and from thence entered India, where they ſettled, and embraced the Indian religion. This religion was eſtabliſhed in the very centre of Tartary, about four centuries after this, *i. e.* about the year of Chriſt 572; and then many temples were built, whoſe ruins, together with thoſe of the fortreſſes, which the Chineſe had erected in that country, are veſtiges of which certain chronological ſyſtem-makers have availed themſelves, to prove monuments of the moſt remote antiquity.—*Such Proofs!*

The annals of Thibet prove the barbarism of that nation about the commencement of the Christian æra (what are they yet?), when they were instructed in the Indian religion by *Samtanpoutra*, a native of Thibet, who went into India, and brought from thence religious books, and other materials of knowledge for the instruction of his countrymen.

These researches of M. de GUIGNES, form the contents of his *First Memoir*, and they are terminated by a Summary of the doctrines of the Indian religion.

The principal contents of the *second* and *third* Memoirs, which relate to the establishment of the Indian religion in China, are as follows:—It was only so far down as the year 207 before Christ, that the Chinese (who were at that time civilized and instructed in the two distinct religious systems of *Confucius* and *Lao-tse*) made great and extensive conquests towards the West. In the year 126 before the Christian æra, their armies advanced as far as Bactria, where the successors of Alexander had founded a kingdom of Greeks, whose power extended to India, and contributed to spread the sciences there. This is the first time that the Chinese (as we learn from their own records) heard mention made of India, on occasion of certain merchandises, which they saw in Bactria; but it was only in the 65th year after Christ, that they were fully instructed in the Indian religion, by the means of Indians, who brought into China one of their sacred books, which is now in the French King's library. This book was translated into the Chinese language, and was followed by more, in process of time, introduced by the Indian Samaneans, who were the priests and teachers of that religion, which many of the Chinese embraced, while it attracted but little the attention of their sovereigns, who were indifferent about every kind of external worship. About the end of the third century, the *secret books* of that religion, which were not communicated to the people, even in India, were brought into China, but not without much difficulty, by Indian doctors, who lived in a kind of monastic community, and translated these books (of which M. de GUIGNES gives here an account) into the Chinese language. Temples were built, and monasteries were erected for both sexes, and the Indian religion, and these connexions between China and India, contributed to the progress of astronomy among the Chinese, who, in the year 440 of Christ, had not as yet fallen upon any exact method of observing and calculating. They derived some light in this science from a Samanean doctor, as well as from the astronomical treatises they had received from the Romans.

The Indian doctors, however, grew ambitious and enterprizing; and in the year 446, the Emperor *Tai-Vouti*, being informed

formed by his miniſters of the pernicious effects which the Indian religion had produced in his territories, went to *Sigan-Fou*, and viſiting there the temples and monaſteries of the Samaneans, was ſurpriſed to find them furniſhed with a prodigious quantity of arms and military ſtores. This occaſioned a bloody perſecution of the Indian Samaneans, whoſe temples and monaſteries were pillaged and deſtroyed, and who themſelves were buried alive in great numbers; ſo that the Indian religion ſeemed to be entirely extinguiſhed. But it raiſed its head in the following reign, and flouriſhed ſo remarkably under the protection of the new emperor, that the number of temples in the territories of this prince, amounted to 13,000, and above 3000 Samaneans emigrated from India, and ſettled at *Lo-Yang*. When we conſider what our Academician mentions of one of the moſt famous of theſe doctors, who was ſo deeply fixed in contemplation (of we know not what), that he remained, during nine years without interruption, with his eyes fixed upon a wall: we cannot form a very high idea of the Chineſe, who ſuffered ſuch fellows to make a noiſe in their empire. Be that as it may, the Indian religion made ſuch a progreſs in China about the beginning of the 6th century of the Chriſtian æra, that in the northern part of that country, which formed, at this period, a diſtinct empire, there were 30,000 temples, and above 200,000 perſons who became Samaneans, and paſſed their lives in a kind of monaſteries. In 556, an emperor, who reigned in the north, and would not allow more than one religion to ſubſiſt in his dominions, obliged the doctors of the ſect of *Tao-ſe* to become Samaneans, and to aſſume the habit of that Indian order.

In 581, the northern and ſouthern territories of China were united into one empire, under *Ven-ti*; who, yielding to the remonſtrances of his miniſters againſt the *Samaneans*, diminiſhed their number, but could not be perſuaded to withdraw from them entirely his protection, though he granted it alſo to the ſect of *Tao-ſe*. The emperors of China protected the Indian religion, becauſe the Brahmines pretended to have the ſectet of rendering them immortal, by means of a certain plant. This, and a variety of other circumſtances, mentioned by M. De GUIGNES, favoured the Samaneans, who became powerful at court, perſecuted their adverſaries, and oppreſſed the people, until the year 840, when an edict was publiſhed which ordered the ſuppreſſion of the Indian religion throughout the empire, excepting only a ſmall number of temples, and about 500 bonzas from the execution of this ſentence. This perſecution was excited by the *Tao ſe*, to whom the Emperor was attached, and by the remonſtrances of the miniſters; but the Indians were reſtored, in the following reign, to their temples and privileges, the Emperor aſſiſted at their religious ceremonies, numbers of

Chineſe were ſent to India to bring religious books from thence, and the Indians kept their ground, with more or leſs ſtability, until the year 965. The ſect of *Tao-ſe* was, however, powerful; the emperors were in a ſtate of fluctuation between theſe two religions, while they continued to profeſs that of the empire. The Indians promiſed them the protection of the Deity, eternal felicity in other worlds, new births here below in happier ſcenes, and ſometimes even immortality in this preſent ſtate, which laſt idea they ſeem to have borrowed from the ſect of *Tao-ſe*. This latter ſect taught a very different doctrine: the Tao-ſe recommended the ſuppreſſion of violent deſires and tumultuous paſſions, and the renouncing vaſt and ambitious projects, as inconſiſtent with tranquillity, and as exciting men to labour for the happineſs of their deſcendants at the expence of their own. According to their *moral* doctrine, it was the wiſeſt ſyſtem to forget the *paſt*, and never to think of the *future*, that all the attention of the mind might be taken up in ſecuring its *preſent* well-being. But as this well-being was troubled by the apprehenſions of death, they flattered themſelves with a notion (which gave them the advantage of many of our modern philoſophiſts) of finding a beverage (as the Indians hoped to find a plant) that would dethrone the king of terrors, and inſure immortality. In a word, the Tao-ſe were Epicureans who abuſed the credulity of the great, and by a commodious doctrine found favour at court.

In the beginning of the eleventh century the Indian religion ſuffered conſiderably in India itſelf, by the invaſion and conqueſts of *Mahmoud*, Sultan of Ghazna, who, in order to eſtabliſh there the religion of Mahomet, perſecuted the Brahmines and Samaneans, and deſtroyed their temples. It is probable, that, on this occaſion, many of the Samaneans made their eſcape to *Thibet*, as it was then that the chiefs of the Indian religion in that country began to aſſume the title of Grand *Lamas*, and Thibet was become, in ſome meaſure, the metropolis of that religion. And, indeed, ſince that epocha, the number of the Indians in China diminiſhed, and the Lamas of Thibet (the ſame with the Samaneans) ſucceeded the Indians at court, and became the pontifs of the Indian religion in China. They held there a grand aſſembly in the year 1289, were 40,000 in number, and agreed upon a form of eccleſiaſtical government. In 1290, when China was ſubdued by the Monguls, the Emperor ſent into India, to invite the learned natives of that country to come and ſettle in China. The Monguls loſt that empire only by the exorbitant power of the *Lamas*, who were become objects of horror and averſion to the Chineſe. It was probable that on the extinction of that dynaſty, the Lamas, who called the Bonzas into China, would be baniſhed the empire; but the contrary happened;

happened: the founder of the following dynaſty (that of *Ming*) had been himſelf a Bonza; he protected the order, and conferred upon the Grand Lama of Thibet the moſt pompous titles.

The votaries of the Indian religion kept their ground in China, and are ſtill reſpected there.

A MEMOIR, *deſigned to reconcile the different Accounts given by the Grecian writers, and more eſpecially by* Herodotus *and* Cteſias, *of the Commencement and Duration of the Aſſyrian Empire; as alſo to reconcile theſe writers with the Perſians, in their Accounts of the Reigns which form* (what the Orientals call) *the Dynaſty of the Peſchdadians.* By M. ANQUETIL DU PERRON.

A MEMOIR *concerning the Empire of the Medes, and that of the Perſians, compared with the Dynaſty of the Keanians, as this Dynaſty is denominated by the Eaſtern Writers.* By the ſame.

Memoir. *Concerning War, conſidered as a Science.* By M. JOLY DE MAIZEROY. If this Memoir had been anonymous, we ſhould have ſuſpected its coming from a royal, but *ſubterraneous* author, ſo plaguily does it ſmell of fire and brimſtone. To render *ſcientific* the exertions of injuſtice, avarice, and ambition; to teach ſovereigns, miniſters and generals, the art of ſhedding innocent blood, of bathing widows and orphans in tears, and ſpreading deſolation, anguiſh, and miſery, through the peaceful ſeats of domeſtic union and ſocial life—is after all but a *deviliſh* kind of buſineſs.——Hold moraliſt!—(will ſome political gladiator ſtep forth and ſay) war is a ſublime ſcience, "as it requires courage regulated by *prudence* (ſo does the ſcience of rope-dancing), and as it ſecures to a people their poſſeſſions and their tranquillity."——Theſe are our Author's words: the honeſt man is dead, and therefore we cannot deſire him to open his eyes, if all the records of hiſtory are inſufficient to perſuade him of the contrary. The truth is, that the *ſcience* of war arms the odious invader as well as the invaded;—and if war had not been reduced to an *art*, it is probable that invaſions would have been both leſs frequent and leſs pernicious; and (what is worthy to be noted) it would not have been an object of glory to ſeek (barbarouſly) for the occaſion of diſplaying military talents, and to make a *bloody campaign* with the ſame ſpirit that two ardent connoiſſeurs play a *game of cheſs*.——However all this may be, the Memoir before us is a maſter-piece in its kind; it is replete with erudition, contains ingenious points of view, and is compoſed with a very uncommon elegance and ſimplicity of ſtile. The Academy of Inſcriptions laments the loſs of its author with ſenſibility: he was one of the moſt elegant antiquaries of that learned ſociety, and has a title to their regret. And ſince wicked ſovereigns and miniſters oblige good and juſt ones to fight whether they will or not,—we cannot but recommend the performance now before us, though woe to thoſe who make a bad uſe of it!

ART.

ART. VIII.

Memoires de Litterature tirés des Regiſtres de l'Academie Royale des Inſcriptions et Belles Lettres: i. e. Memoirs of Literature taken from the Regiſters of the Royal Academy of Inſcriptions and Belles-Lettres from the Year 1773 to the Year 1775, and a Part of the Year 1776 incluſive. Vol XLI. Paris, 1780.

HISTORICAL Reſearches concerning the Edicts of the Roman Magiſtrates, Fourth Memoir. By M. BOUCHAUD. The *Edicts of the Prætors* form the ſubject of this Memoir, which is divided into four parts. In the *firſt* our learned Academician treats of the origin of the prætorſhip, the number of prætors, and of their particular diſtricts. In the *ſecond and third* he conſiders the power and the different functions of the prætors, as alſo the different kinds of edicts they iſſued out in conſequence of the different ſpheres in which they acted; and, in the *fourth*, he points out the changes that were introduced into the Roman Juriſprudence by the edicts of the Prætors.

The 23d, 24th, and 25th *Memoirs concerning the Roman Legion.* By M. LE BEAU. The nouriſhment and pay of the legionary ſoldier, and the diſcipline of the legion, are objects treated in theſe Memoirs, with that prodigality of eruditition which we generally meet with in the reſearches of M. Le BEAU, but, at the ſame time, with that accuracy and preciſion that alleviates the burthen of this erudition to the curious reader.

A General Repreſentation of the State of the Grecian Cavalry, together with a Tranſlation of the Treatiſe of Xenophon, entitled, Ιππαρχικὸς, or the Commander of Cavalry, Two Memoirs. By Mr JOLY DE MAIZEROY. In the firſt of theſe Memoirs the ingenious and learned Academician treats of the ſtate of the Grecian cavalry from its original inſtitution, to the death of Epaminondas; and in the ſecond he conſiders the variations and improvements through which it paſſed from this period to the battle of Cynocephales, in which Philip II. of Macedon was vanquiſhed by Flaminius.

Reſearches concerning the Symphony of the Ancients. By M. De ROCHEFORT. Some of the moſt eminent muſical writers look upon it as highly probable, that the ancients were entirely unacquainted with *harmony*, which is the ſoul of modern muſic. Our Academician does not pretend to maintain, that the ancients carried the counterpoint (or the art of diſpoſing ſeveral parts in ſuch a manner, that though each had its diſtinct and proper melody, their union compoſed an agreeable whole or concert) to ſo high a degree of perfection as the moderns have done: nevertheleſs, he thinks it highly probable, that they had ſome knowledge of the art of concords, by which he means, the art of joining ſeveral inſtruments and voices together, which, either in ſong or accompaniment, formed a ſeries of concords, from whence reſulted a real harmony.

Memoir.

Memoir. *Concerning Greek Proſe.* By the Abbé ARNAUD. It is remarkable, as this Academician ingeniouſly obſerves, that the firſt proſe-writers among the Greeks derived their language immediately from the poets, who, by applying it to the important objects of legiſlation, morals and religion, and to the moſt ſublime productions of nature and art, had ennobled all its expreſſions. This circumſtance gave the Greek proſe a peculiar degree of beauty and energy, and diſtinguiſhed eminently the Greek language from that of all the learned and poliſhed nations that have exiſted. Our Author does not propoſe here to give a regular treatiſe on Greek elocution, but only to point out its principal characters and periods. In this *firſt part* of his Memoir, which alone is publiſhed as yet, he treats of *words*, conſidered with reſpect to their choice, arrangement, and figures. In the *ſecond* he propoſes to treat of the different kinds of ſtile; and in the *third* of the *manner* of the moſt eminent Grecians, whoſe works have been handed down to our times.

An ANALYSIS *of Ariſtotle's Poetics, or Art of Poetry, in which it is ſhewn, that the tranſpoſitions made by Heinſius in the Text of that Work, ought not to be adopted.* By the late Abbé BATTEUX. This Memoir is ingenious, and worthy of the extenſive erudition and critical *acumen* of its Author. It furniſhes us, however, with an opportunity of pointing out the palpable miſtakes into which learned men have ſucceſſively fallen in their explications of Ariſtotle's definition of tragedy, and correcting that of the Abbé BATTEUX, which is as erroneous as thoſe of his predeceſſors, whom he has criticized with freedom, ſpirit and juſtice. The miſtakes in queſtion relate to the laſt part of Ariſtotle's definition, in which he points out the *end* or final purpoſe of tragedy, or the effect it is intended to produce upon the audience: the words, as they ſtand in the Greek, are, δια Ελεϑ και φόβου περαίνουσα την τῶν τοιὼτων Παθημάτων καθαρσιν. It appears evident, as the Abbé Batteux obſerves, that *Victorius* tranſlated this paſſage word for word, without underſtanding what Ariſtotle meant, or perhaps attaching any idea to his terms. His Latin verſion *(per miſericordiam et metum conficiens hujuſmodi perturbationum purgationem)* renders this highly probable. The tranſlations of *Caſtelvetro* and *Heinſius* leave, at leaſt, the difficulty of the paſſage in all its obſcurity. *Dacier* is not a whit more luminous on the ſubject: *La trageaie* (ſays he in his tranſlation of the paſſage) *eſt l'imitation*, &c. *qui par le moyen de la terreur et de la pitie, acheve de* PURGER *en nous ces ſortes de* PASSIONS, *et toutes les autres ſemblables*; i. e. tragedy is an imitation, &c. *which by the means of terror and pity, completely* PURGES or PURIFIES in us, theſe *kinds of* PASSIONS, *and all others of like ſort.* Our Academician expoſes the abſurdity of this verſion and aſks, among other things, what is meant by *purifying terror and pity by the means of terror and pity?*—and what alſo the tranſla-

tor

tor underſtands by *all others of a like ſort?* He concludes from all this, that learned men have not courage enough to acknowledge their ignorance on certain occaſions, even when they themſelves are ſenſible of it. This we believe to be very true: and this is more eſpecially the caſe with the Latin tranſlators of Greek authors, who giving word for word, and only taking care of the grammatical conſtruction, have tranſmitted the obſcurity of difficult paſſages in their tranſlations, and hoped that their readers would impute this obſcurity either to the original author, or to their own incapacity.——The Abbé BATTEUX finds the paſſage in queſtion difficult, but he thinks he has hit off the true explication. His tranſlation of the whole definition is as follows: *Tragedy is the imitation of an action that is elevated entire, and of a certain extent*, &c. *producing in us, not by a recital, but by terror and pity*, THESE *emotions or* PASSIONS, *purged or purified from what is diſagreeable in them* *. We ſhewed, in a preceding Appendix †, what ideas the Abbé attaches to theſe terms. According to him, the *end* of tragedy, as defined by Ariſtotle, is, (by the exhibition of a fictitious cataſtrophe) to make us feel the paſſions of pity and terror diſengaged from the circumſtances that render them painful. The Grecian philoſopher had obſerved, ſays our Academician, that the emotions of joy from fictitious objects produce a ſort of dejection in the mind when the ſcene is finiſhed, and concluded from hence that ſcenes, productive of pity and terror, were preferable in tragedy, as they excite *emotion* without anguiſh, *fear* without danger, and *compaſſion* without the exiſtence of miſerable objects; and thus the paſſions of fear and compaſſion affect the mind without tormenting it, and are diſengaged, or (as Ariſtotle expreſſes it) *purged* from the poignancy and dejection that accompany them in real life.

All this is very ingenious—but it happens not to be true: the three laſt words of Ariſtotle's definition have been totally miſunderſtood: for the word πάθημα is never employed by him to ſignify *paſſions*, and the tranſlators have not attended to the propriety of the Greek language in the different ideas it conveys by the words παθος and παθημα; by the latter of which is always meant not paſſions (which are expreſſed by the former), but *ſufferings* or *calamities*. Again, the word καθαρσιν does not here mean *purification* or *refinement*; for, though καθαίρω ſignifies often to *clean*, *purge* or *purify*, this is only its ſecondary ſignification, formed, indeed, by an eaſy and natural tranſition from its

* La tragedie eſt l'imitation d'une action noble, entiere, d'une certaine etendue, &c. pour produire en nous, non par le recit, mais par la *terreur* et la *pitie*, ces emotions purgeés de ce qu'elles ont de deſagréable.

† See the Appendix to the ſixty-firſt volume of our Review, p. 524.

primitive

primitive and original ſenſe, which is, to *remove ſomething entirely*. So that the end of tragedy, as it is repreſented by Ariſtotle, is, by exhibiting certain calamities on the ſtage, to *remove ſuch* calamities (τοιυτων παθηματων) out of human life, by exciting the *pity* and *terror* of the audience at the repreſentation of them. The firſt perſon (if we are not miſtaken), who hit off this happy explication of the difficult paſſage in queſtion, was the late Dr. James Moor, profeſſor of Greek in the Univerſity of Glaſgow *.

Critical Remarks on the Text, and on certain Tranſlations of the Hippolytus *of Euripides*. By M. DUPUY.

An Enquiry into the Philoſophy of Cicero. Firſt Memoir. By Mr. GAUTIER DE SIBERT. In order to form a true judgment on this ſubject, our Author has thought it neceſſary to make a previous enquiry into the manner in which philoſophy was introduced into Rome—the progreſs it had already made there in the time of Cicero—the number of academical ſects, and their peculiar and diſtinguiſhing tenets—the ſect which Cicero embraced, and what he properly meant when he called himſelf an Academic Philoſopher. Theſe points are learnedly diſcuſſed in this *firſt part* of the Memoir before us; but our Academician walks here in a beaten path of erudition, and throws no new light, as yet, on the philoſophy of Cicero, whatever he may do in the *ſecond part*, in which he promiſes an analytical view of the doctrine of the Roman ſage, extracted from his works. Every one knows, that Cicero was not one of thoſe cloudy-headed and ſuperficial academics who doubted about every thing, againſt which human ignorance could form complaints of obſcurity, or metaphyſical ſophiſtry raiſe objections: it is well known, that his aſſuming the title of an academic was deſigned to keep him diſengaged from the ſervitude of ſyſtem, and from the deſpotiſm of philoſophical ſectariſm, and thus free to embrace the truth in whatever ſect or party he found it.

Remarks on certain Medals of the Emperor Antoninus, ſtruck in Egypt. By the Abbé BARTHELEMY.

An Examination of the Hiſtory of the Epheſian Matron, and of the different Imitations it has occaſioned. By M. DACIER. A moſt inſipid maſs of philology.

An Account of a Greek Manuſcript in the King's Library, in the Hand-writing of the Sixteenth Century, on 4to Paper, and marked 12912. By M. DACIER. The work contained in this Manuſcript is indicated in the title by the word SYNTIPAS: we learn from the ſame title, that it is a tranſlation, and even a ſtrictly literal one, from the Syriac into Greek. A kind of ar-

* See a ſmall Pamphlet of his intitled, *An Eſſay on the end of Tragedy, according to Ariſtotle*; of which an account was given in Monthly Review, vol. xxx. p. 64.

gument

gument or ſummary of contents, which probably has been prefixed to it by the tranſlator, unfolds the ſubject of it in the following manner: "The hiſtory of the philoſopher, written by us, "regards Cyrus King of Perſia, his legitimate ſon, *Syntipas*, "the preceptor of the young prince, the ſeven philoſophers of "the king, and one of his wives, who was equally ill-natured "and immodeſt:—the Reader will, moreover, ſee in this work, "the calumnies and intrigues invented by that ſtepmother to "ruin the young Cyrus." This is a curious romance, and muſt have been well known in all nations; for it has appeared in all languages. The Greek, as we obſerved already, was tranſlated from the Syriac, and the Syriac was (as our Academician informs us), tranſlated from the Hebrew, the Arabic, or the Perſian. The remarks of M. DACIER on this piece are worthy of the name he bears.

There are ſome other MEMOIRS, of more curioſity than importance; for which we refer to the original publication.

ART. IX.

Voyage Pittoreſque de la Grece. Chap. VII. & VIII.—Travels through different parts of Greece, repreſented in a Series of Engravings, large Folio, No. 7 and 8, Paris 1780 and 1781. [See our late Reviews and Appendixes.]

No. VII.

AFTER the iſle of Rhodes, the little iſland of *Symeo*, whoſe inhabitants, male and female, have carried the art of *diving* farther than any other people, drew the curious attention of the Count de Choiſeul G.——From thence he ſet out in queſt of antiquities for the *Gulph of Macri*, called, in times of old, *Glaucus Sinus*, which is repreſented in the ſixty-third plate, the firſt of this ſeventh number. Here he met with the ruins of *Telmiſſus*, from which city the gulph of Macri was, alſo, formerly called *Telmiſſidus Sinus*, as we learn from Livy and Lucan. The origin, however, of Telmiſſus has eſcaped all the reſearches of our learned Traveller; but the remains of a theatre, and the rich fragments of magnificent tombs, which he diſcovered in its ruins, are proofs of its paſt opulence and grandeur. Theſe are repreſented in NINE ſeparate PLATES. The remains of the tombs (thoſe ſplendid monuments of ſuperſtition and vanity, ſuppoſed to give a kind of pre-eminence to the great even after death), are indeed magnificent. Several of their plans are ſingular. The great *Sarcophagus* reſembles an edifice built of wood; and it is well known what pains the ancients often took to give their tombs the forms of their houſes. In the marble urns that abound in Italy, it is eaſy to diſcern the roof of a houſe with all its diviſions; in ſome alſo we ſee the door ſhut, in others half open, and in ſeveral, guarded by the genius of death; and, it is more

more than probable, that the *domus exilis Plutonia* in Horace ſignified the ſepulchral monument. As the tombs of *Perſepolis* bear a ſtriking analogy to thoſe of *Telmiſſus*, our Author has given us the repreſentation of a tomb at *Naxi-Ruſtan*, erected near the ruins of the former. Theſe analogies, which are here the objects of a learned and ample diſquiſition, illuſtrate, no doubt, the hiſtory of the arts, and the communications which they ſuppoſe, and which they produced between ancient nations.

The view, and the geometrical plans here exhibited, of the remains of the theatre of *Telmiſſus*, are curious, well drawn, and like the reſt of the work, perfect, as to the engraving. This theatre was formed on the declivity of a hill, in the ſame manner as that of Bacchus at Athens, and, in general, all the Grecian theatres. It is built of a blue grey ſtone exceedingly hard. All the circular part of the edifice, on which the ſpectators were placed, is well preſerved; but the extremities, which joined the *proſcenium*, and were not ſuſtained by the ground, are totally deſtroyed. All this part, together with the ſtage, is filled with rubbiſh, which renders the foundations inacceſſible. The interior elevation of the ſtage was divided by five gates, accompanied with pedeſtals on which probably columns or ſtatues were placed. Under this elevation appear the void ſpaces, deſigned to receive the beams which ſupported the ſtage. Three paſſages are alſo diſcernible, which were under the ſtage, and led to the orcheſtra.

By an allegorical print, which concludes this Number, the Author informs us, that none of the medals of *Telmiſſus* have eſcaped the ruins of time. In this compoſition we ſee the waſting power of *time*, conſidered in its different modes or aſpects. The PAST is repreſented under the figure of an aged man, leaning upon tombs and ruins; the PRESENT under that of a *youth*, who deſtroys every thing by his rapid flight—and FUTURITY under the emblem of a winged infant, who whets his ſcythe. The French have a peculiar talent at embelliſhing trifles; but this is an ingenious decoration of——*nothing*.

No. VIII.

PLATE LXXIII. exhibits a *complete chart* of the Author's voyage from the gulph of *Macri* to the *Meander*. His paſſage through *Caria* gives him an opportunity of enlarging upon the hiſtory and antiquity of the Carians, and the different ſovereigns under whoſe domination they lived ſucceſſively. After many revolutions, their reduction into the form of a Roman province under Veſpaſian, obliged them ever after to ſhare the deſtinies and fate of the Roman empire, until the conſequences of the Croiſades ſubjected them to new bonds, and new tyrants, among the Aſiatics.

A large tree, the view of a village, and a groupe of figures, which repreſent his fellow-travellers, furniſh our Author with the

the materials of his 74th plate, which exhibits his *halt and reſting-place near the village of Dourla h in Caria.* We hope he reſted well, and that his pullets were tender; for they, and an otter, are the only objects we meet with in this part of his peregrination. Why multiply plates without any vocation from taſte, inſtruction, or curioſity?

The 75th plate repreſents the *reception* which our noble Traveller met with from *Haſſan Tchaouſch Oglou* at Moglad, a city raiſed upon the ruins of *Alinda.* This old man had rendered himſelf independent on the Ottoman Porte by his opulence and courage, and acted the ſovereign with ſpirit and capacity. The converſation that paſſed between him and our Traveller reads well enough, when we have the handſome print of the Aga's palace before us; it would loſe by being exhibited in ſcraps, and we cannot afford room for the whole.

The Palace of the Aga of Eſki-Hiſſar is the ſubject of the 76th plate, and a very poor buſineſs it is. The inconſiderable village of *Eſki-Hiſſar* may have been (as Pocock and Chandler ſuppoſe) the ancient *Stratonicea*, which was founded by the Macedonians, and received its name from the Queen of Antiochus Soter; but there are no veſtiges remaining of its ancient temples mentioned in hiſtory, as dedicated to *Hecate* and Jupiter *Chryſaoreus*, where all the cities of Caria ſent, annually, deputies to offer ſacrifices in common, and to regulate the general affairs of their confederated republic.

The 77th plate repreſents a *Turkiſh feſtival*, which reſembles a good deal the dances and merry-making of the Flemings in the prints of Teniers, with this difference, that the dreſs of the Turks is more elegant, and the motions of the dancers more violent than thoſe of the phlegmatic inhabitants of the Auſtrian Netherlands.

The 78th and 79th plates exhibit the remains of ſeveral ancient tombs and monuments; and the two following, which conclude this Number, repreſent the ruins of *Stratonicea*; among other fragments, are thoſe of the theatre.

This Number is terminated by a *drawing* which recals to remembrance the misfortunes of *Monimia*, and exhibits ſome medals of the cities already mentioned. The medal of *Alinda* repreſents, on one ſide, the head of Hercules, and, on the other, his club and the lion's ſkin. There are two medals alſo of *Stratonicea*, the figures and characters of which make us recollect the games that were celebrated in that city: on the firſt, we ſee an altar with the fire kindled between two torches—on the reverſe, an Athletic horſeman holding a ſteed by the bridle. On the ſecond, there is a VICTORY holding a crown and a palm branch, and on the reverſe, the name of Stratonicea incloſed in a crown of laurel.

INDEX.

M. all.

INDEX

To the REMARKABLE PASSAGES in this Volume. 64.

N. B. *To find any particular* Book, *or* Pamphlet, *see the* Table of Contents, *prefixed to the Volume.*

ABREGE' *de l'Hiſtoire des Voyages*, 298.

ACHARD, M. his memoir on the dephlogiſtication of phlogiſticated air, 507. His exper. on the method of calming the agitation of the ſurface of a fluid, by oil, &c. 508. Concerning the weight, &c. of diff. ſorts of air, 509. On the manner of hatching eggs, by electricity, 510. On the colours of vegetables, 511. On meaſuring the ſalubrity of the air, 512. Concerning the cauſe of the Aſphyxia, and the remedy for that diſorder, 512.

ACID, *Animal*, exper. rel. to, 266.

AGRICULTURE, ſtrictures on ſocieties for the promotion of, 426. Scheme for rendering them more uſeful by *experimental* inſtitutions, and approved *practice*, 427.

——— Reflections on the preſent ſtate of, 455.

AIR. See INGENHOUZ. See SCHEELE. See ACHARD. See JANSSENS.

ALLEMAND, M. his plan, &c. with reſpect to inland navigations in France, 456.

AMEILHON, Abbé, his account of the art of diving as practiſed by the ancients, 546.

ANDRE, Major, his familiar letters to his friends, 374.

ANT, obſ. on the nat. hiſt. of, 526.

ARCHITECTURE. See LE CAMUS.

ARISTOTLE. See BATTEUX.

ARNAUD, Abbé, his remarks on Greek proſe, 555.

ASPECT, M. his hiſt. of the order of St. Louis, 455.

ATTRACTION. See HUTTON.

AVIS *aux Citoyens*, &c. See PUBLIC.

BARK, Peruvian, aſſerted to be a compound of fixed air, 532.

BARLEY, *Siberian*, experiments relative to the culture of, 420.

BARNARD, Mr. his acc. of a method for the ſafe removal of ſhips that have been ſtranded, 270.

BAROMETER, obſervations on a particular variation of, 505.

BATTEUX, Abbé, his analyſis of Ariſtotle's Poetics, 555.

BEAUCLERC, Lady Diana, her drawings and bas-reliefs praiſed, 131, 132.

BEAUZVILLE, M. his letter to the Reviewers, 320.

BEES, curious obſ. concerning the nature and œconomy of, 528.

BEGUELIN, M. his inquiries concerning the unities of nature, 513.

BELIN, Claude, his voyage to Bruſſels, 518.

BERTHOLD, Dom. his account of the public library of the Abbey of St. Vincent, 517.

——— concerning the voyage of Claude Belin, 518.

BERTHOLON's diſſert. on the electricity of the human body, 463.

BEUNIE, M. de, his chemical eſſay on lands or ſoils, 529. His memoir on the poiſon of lead, 536.

BISCAYNERS characteriſed, 46. Pronounced to be the happieſt of mankind, 48.

BITAUBE', M. his conſiderations on Homer, 504.
BLIZARD, M. his new method of treating the *Fiſtula lachrymalis*, 267.
BOBACK, deſcription of that animal, 505.
BODY, Human. See MILLY.
———. See PERNETY.
BOLINGBROKE, Lord, his general objection to the ſcriptures anſwered, 174.
BOSE D'ANTIC, Dr. his works, 458.
BOUCHAUD, M. his inquiries concerning the edicts of the Roman magiſtrates, 554.
BRIGANDAGE *de la Muſique Italienne*, 465.
BUAT, Chevalier, his principles of hydraulics, 458.
BUFFON, *M. de*, his hypotheſis concerning a central fire, or heat of the terreſtrial globe, rem. on, 454. His notions ridiculed, 485.
BUNBURY, M. H. his humorous etchings commended, 131.
BURKE, Mr. his fine compliment to Mr. Howard on acc. of his inſpection of the priſons, 103, *the Note*.
BURLINGTON, Earl of, his excellent taſte in architecture, 190. His houſe at Chiſwick criticiſed, 191. His Lordſhip's other deſigns, ib.

CAITHNESS, pleaſing deſcription of ſome parts of that country, 114.
CASTILLON, M. his problem on the ideas in the Divine Mind, 504.
CATHOLICS, Engliſh, their conduct, with reſpect to Gov. unexceptionable, 401—408. Their numbers, wealth, and influence, in this county, all declining, ib.
CATTLE, the contagious diſtemper among, affirmed to be an eruptive fever, of the variolous kind, 277. Farther inquiry concerning, 517.
CAVALLO, M. his new experiments in electricity, 264. His thermometrical experiments, 277
CAZAUD, M. his obſervations on mills for ſugar-canes, 441.
CHESNUT-TREE, Indian, account of, 494.
CHINA. See GUIGNES.
CHRIST, inquiry into the duration of his public miniſtry, 82. His Prayer paraphraſed, 165. In what ſenſe the Son of God, 313. Farther controverſy relat. to the duration of his miniſtry, 433.
CHRISTINA, Q. of Sweden, anecdote and character of, 133.
CHYMIE Domeſtique, 303.
CICERO, his character defended againſt a late tranſlator of his Orations, 251. His character as a philoſopher defended, 557.
CLERGY, remarks on the propriety of their acting in the commiſſion of the peace, 380.
COLD, extraordinary degree of, at Glaſgow, in January 1780, 275.
COMETS, the tails of, their analogy to the *Aurora Borealis*, 522.
——— real electrical bodies, 523.
COMMONS, incloſing of, not injurious to the Public, 256.
CONDUCTORS, electrical, beſt form of, 533.
CONSTANTINE, Emperor, his character, 291. Great and laſting influence of his converſion, victories, and policy, on a conſiderable part of the Globe, 359.
CONSTANTINOPLE, its fine ſituation, and peculiar advantages, 289.
COPPER, improved method of tinning, 537
COPPER-ORES. See FORDYCE.
CRAIG-CARRIL, romantic ſcenery of, 113.
CRISPUS, the ſon of Conſtantine, his character, 294. His unfortunate end, 295, 296.
CYRUS, account of a Greek manuſcript of a curious romance relative to him, 557.

INDEX.

DACIER, M. his acc. of a Greek manuſcript, 557.

DEITY, problem relative to the infinity of the ideas in the mind of, 504

DESPREAUX, M. his general hiſt. of Greece, 302.

DIOGENES, his Dialogue with Alexander, in the Shades, 31.

DIVING, academical diſquiſition on the art of, 546.

DOYEN's Inquiries concerning the feudal laws, 305.

DUBOIS, M. his account of the Boback, 506.

DUCHANOY, Dr. his eſſay on the art of imitating mineral waters, 304.

DUN-DORNADILLA, pictureſque view of, 114.

EARTH, globe of, philoſophical ideas reſpecting the changes it has undergone, 482.

ECCLESIASTIC, life of, moſt deſirable, 56.

ELECTRICITE' *du corps humain.* See BERTHOLON.

ELECTRICITY, exper. and obſerv. relative to, 2. New hypotheſis of, ib. Contravened, 3. Remarks on ſome principal phenomena in this branch of philoſophy, 7. New exper. in, 264. Account of the effect of, in ſhortening wires, 273. Of its efficacy in removing female obſtructions, 356. Its uſe in hatching eggs, 510. A modification of the elementary fire, 520. See alſo CONDUCTORS.

ELEMENS *de la geometrie ſouterraine theoretique et pratique*, 454.

ENTRETIENS *philoſophiques ſur la religion*, 303.

EUNUCHS their influence in the courts of the Roman Emperors, particularly in the time of Conſtantius, 357.

ESSAI *ſur l'art d'imiter les eaux minerales*, 304.

EURIPIDES, new tranſlation of his tragedies, 62. Specimen of, 63.

EYE. See WALTER.

FARMS, engroſſing of, obſervations on, 257.

FAUSTA, Empreſs, her cataſtrophe, 296, 297.

FENCING, various rules to be obſerved in, 92.

FEVERS, obſer. on the nature and treatment of, 9, 222.

FIRMIN, Thomas, his excellent character, 215.

FIRE. See HEAT. See MORGAN. See MANN.

FISTULA *Lachrymalis*, new method of treating, 267.

FONTANA, Abbé, his eſſay on the *Vicunas*, 267.

FORDYCE, Dr. his new method of aſſaying copper ores, 265.

FORMEY, M. his examination of the queſtion; Whether ALL TRUTHS are fit to be TOLD? 499. His account of M. Lambert, 506.

FOSSILS, accidental. See LAUNEY.

———. See WITRY.

FRANCHEVILLE, M. his account of the *Hyppocaſtanum*, 494. His diſſ. on the *Electoral Septemvirate*, 505.

FRAULA, Count de, his theory of language, 539.

GALLITZIN, Prince, his letter concerning electricity, 532, 533.

GARDENING, hiſtorical account of the art of, 193. Great defects of the ancient pleaſure gardens, 194.

GENIE *de l'architecture*, 463.

GERHARD, M. on the tourmaline, 495.

GLOBE. See LETTRE.

GOUTIER, M. his inveſtigation of the hair and beards of the ancients, 546. His inquiry into the philoſophy of Cicero, 557.

GRAINCOURT, M. his hiſt. of illuſtrious

luſtrious French naval officers, 298.
GRANGE, M. de la, his memoirs concerning the orbits of comets, and the theory of teleſcopes, 513.
GRANVELLE, Cardinal, his letter to Claude Belin, 518.
GRASS, a peculiar ſpecies of, found in Wiltſhire, 419. Valuable qualities of, 420.
GREEKS, ancient, their cavalry, 554. Their proſe, 555.
GUIDI's philoſophical converſations concerning religion, 303.
GUIGNES, M. de, his obſervations concerning certain points rel. to the religion and philoſophy of the Egyptians and Chineſe, 547. His reſearches concerning the Indian religion, &c. 548. on the eſtabliſhment of the Indian religion in China, 550.

HALIFAX, Dr. his defence of Dr. Ogden's ſermons againſt Mr. Mainwaring, 100. Anſwered, 101.
HAMILTON, Sir W. his acc. of the late great erup. of Veſuvius, 268.
HARPE, *M. de la*, his abridg. of the gen. hiſt. of voyages, 298.
HEAT, attempt to render the principle of, *viſible*, 301.
HENCKEL, M. his acc. of a ſingular caſe of the *Cæſarian Section*, 496.
HERESY, explan. of that word in its original meaning, 34.
HERETICS, ancient, reſcued from the calumnies with which they were loaded by the orthodox bigots, 37.
HERSCHEL, Mr. his obſ. on the periodical ſtar in the whale's neck, 441. On the mountains in the moon, ib.
HIPPOCRATES, ſpecimen of his manner of relating caſes, 218. His notions of phyſiognomy, 219.
HISTOIRE, *generale et particuliere*, de la Grece, 302.
——— *de l'Ordre de* St. Louis, 455.
HOGARTH, his pictures critically diſplayed, 184. Mr. Walpole's account of his *Sigiſmonda* corrected, 188.
HOLLIS, Thomas, his peculiar but excellent character, 41. Mem. of his life, 42. His death, 44. His magnificent literary monument, 45.
HOMER, the queſtion concerning the learning of, diſcuſſed, 504.
HOWARD, Mr. celebrated by Mr. Hayley in verſe, 103. By Mr. Burke in proſe, ib.
HOWMAN, Mr. his account of the culture of Siberian barley, 421.
HUNTER, Mr. his acc. of a *fœtus* which ſeemed to have received the ſmall-pox from its mother, 267. Of an extraordinary pheaſant, 276.
HUTTON, Dr. his calculations to determine at what point on the ſide of a hill its attraction will be greateſt, 439. His paper on cubic equations, &c. 441.
HYDRAULICS. See BUAT.

JAPAN, extreme jealouſy of the government there, as to cuſtom-houſe duties, &c. 271. Philoſ. inquiries concerning that country, 305.
JARS, Mr. his ſubterraneous geometry, 454.
JERVAS, the painter, his performances cenſured, 134.
JERRY Laſt, ſtory of, 121—128.
INGENHOUZ, Dr. his exper. on the comparative ſalubrity of the air at ſea and on ſhore, 274.
INITIATIONS, origin of, 303.
INTRODUCTION *et plan d'un traité general de navigation interieure*, 456.
IRELAND, political ſtrictures relative to, 200, 306.
ITALY, encomium on, 106.
———. See NAPLES.
JUDGES, ought *not* "to be of counſel for the priſoner," as vulgarly ſuppoſed, 388.

JULIAN, emperor, his partiality for Paris, 358. Beautiful ſituation of that place, in its infant ſtate, ib. His extraordinary character, 443. His reformation of the imper. court, 444. His ſincere attachment to the gods of Athens and Rome, 446. His literary talents, 447.

KENT, the architect, his excellence in deſigning, 192. His great improvement of the art of laying out pleaſure grounds, 195.
KOENIG, M. his ſubterraneous geometry, 454.

LAMBERT, Henry, the academician, account of, 506.
—— the painter, his works appreciated, 183.
LANGUAGE. See FRAULA.
LAUNAY, M. de, his inquiry into the origin of accidental foſſils in the Belgic provinces, 530. His memoir concern. the Oricalcum of the ancients, 540.
LAYARD, Dr. his acc. of the diſtem. among the horned cattle, 276.
LEAD, the poiſon. qual. of, 536, 537
LE BEAU, M. his memoirs concern. the Roman legion, 554.
LE CAMUS *de Mezieres*, his treatiſe on the genius or ſpirit of architecture, 463.
L'ESPRIT *des Croiſades*, 456.
LETTRE *concernant la chaleur du globe*, &c. 454.
LES HOMMES ILLUSTRES *de la marine Français*, 298.
LORD's Prayer paraphraſed, 165.
LORETTO, chapel of, its *Travels* and *Adventures*, 142.
LUCAN, Lady, her paintings commended, 131.
LUCIAN, his dialogue with Lord Lyttelton in the Elyſian Fields, 23. Character of Lucian as a writer, 32. Specimen of a new tranſlation of his Dialogues, 31. See alſo DIOGENES.
LUDLAM, Mr. his demonſtration of the properties of the engine for turning ovals, 441.
LYON, Mr. his letter to the Reviewers, concerning his treatiſe on electricity, 318.

MADAN, Mr. his Thelyphthora criticiſed, 196. Invectives againſt, 221—230. More ſeriouſly attacked, 234.
MAIZEROY, M. Joly de, his memoir on war, conſidered as a ſcience, 553. His ſtate of the Grecian cavalry, 554. His tranſl. of Xenophon's treatiſe on that ſubject, ib.
MAN *in the iron maſk*, conject. rel. to, 96. Voltaire's acc. of, ib.
MANN, Abbé, concerning elementary fire, 519. His natur. hiſt. of the North ſea, 523. His memoir on the effects of pouring oil on agitated water, 526. His remarks on Dover Cliffs, 531. His acc. of the port from which Julius Cæſar embarked to invade England, 538. Of the port in England where Cæſar landed, ib. Of the exact time when, ib. His examination of the opinion of ſeveral ancient and modern authors, who maintain that there was formerly a communication between the Euxine, Caſpian, Baltic, and White Seas, 541.
MARAT, Dr. his philoſ. inquiries concerning fire, 309.
MARCI, Abbé, his acc. of a method of improving the tinning of copper veſſels, 537.
MAR-LODGE, in Scotl. deſcribed, 112.
MASERES, Baron, his paper on the extenſion of Cardan's rule to the *irreductible* caſe of cubic equations, 439. His conjecture concerning the method by which Cardan's rules of reſolving cubic equations were diſcovered, 440.
MATERIALISM, rem. on the controverſy relating to, 59.
MEMOIRE *ſur l'Acier*, 305.

MEMOIRS rel. to mathematics and natural philoſophy, vol. ix. 302.
MERIAN, M. his inveſtigation of the problem of *Molyneux*, 503.
METROLOGIE, *ou traité de meſures*, &c. 460.
MILLY, Count de, his memoir concerning the *aeriform* emanations from the human body, 494.
MONK's ſtone in Northumberland, extraordinary. ſtory concerning, 55.
MONTAGU, Ed. Wortley, his manner of living at Venice, 139.
MOON. See HERSCHEL.
MORGAN, Mr. his examination of Dr. Crawford's theory of heat and combuſtion, 351.
MORAVIANISM, candid account of, 207. Vindicated from the charge of immorality, 208. Sketch of the hiſtory of the Moravian brethren, 212.
MOTION. See St. VINCE.
MUSCLES, obſerv. on the pernicious effects of, 527. The beſt method of cooking them, 528.
MUSIC, its uſe, in dramatic exhibitions, 282.
——— Italian, robberies committed by, 465. Extravagant expence of ſome Princes in regard to this article of amuſement, ib.
——— of the ancients, deficient with reſpect to harmony, 554.

NAIRNE, Mr. his acc. of the effect of electricity in ſhortening wires, 273.
NAPLES, remarks on the hereditary juriſdict. of the nobles there, and in Sicily, over their vaſſals, 367.
NATURE, philoſophical inquiries into the unities of, 513.
NAVIGATION, *inland*. See ALLEMAND.
NEEDHAM, Mr. concerning the contag. diſorder among the cattle, 517. His natural hiſt. of the ant, 526. His inquiries concerning the nature and œconomy of bees, 528.
NELIS, Abbé, his points of view rel. to Belgic hiſtory, 530.
NORTH Sea, curious natural hiſt. of, 523. Its fiſheries, and the means of improving them, 524.
NURSE, remarkable inſtance of the continued affection of one for a perſon whom ſhe had reared in infancy, 383.

OBSERVATIONS *critiques et philoſophiques ſur le Japon*, 305.
OEUVRES de M. Boſe d'Antic. 458.
OGDEN, Dr. memoirs of, 99. His ſermons vindicated by Dr. Halifax againſt the cenſures of Mr. Mainwaring, 100. Reply to Dr. Halifax, 101.
OIL, its uſe in calming the agitation of the ſea, &c. 508. Effects and phenomena of, 526.
OPERA, Comic, obſerv. on, 282.

PARIS, acc. of that city in its primitive ſtate, in the time of Julian, 358. Curious dialogue relative to, See RUSSIAN.
PARLIAMENT, of England, in what manner influenced by the crown, 17. Reform. contended for, 18.
PASTORAL nations, manners of. See TARTARS.
PATMOS, iſle of, ſome acc. of the preſent ſtate of, 453.
PAUCTON, M. his treatiſe of meaſures, weights, and coins, 460.
PELTZER, Count de, affecting ſtory of, 107.
PEMBROKE, Henry Earl of, his fine taſte in architecture, &c. 190.
PERCIVAL, Dr. his acc. of a new method of obtaining a fixed alcali from putrid vegetable and animal ſubſtances, 272.
PERNETY, Dom. concerning bodily conſtitutions, 503.
PERRET's diſſert. on ſteel, 305.
PHEASANT, acc. of a hen, with the feathers of a cock, 276.
PHILOSOPHICAL and critical obſ. on Japan, 305.
PHOSPHORUS, exper. rel. to, 266.

PILLAR of Forres described, 112.
POPE, Mr. his maxim with respect to forms of government exploded, 17.
POPERY preferred to Methodism, 102. Greatly on the decline in England, 403—408.
POPULATION, the present state of, in England, not declining, 254.
POT-ASH, new and cheap method of preparing, 272.
PRIESTLEY, Dr. his paraphrase on the Lord's Prayer, 165
PRINCIPES *d'Hydraulique*, 458.
PRISON, at Moscow, anecdote of a gentleman confined in, 373.
PRUSSIA, K. of, his letter to the late Earl Mareschal Keith, 112.
PUBLIC, advice to, relative to the causes, characters, symptoms, and *true* remedies of blindness, deafness, and the principal venereal symptoms, 457.

RECHERCHES *physiques sur le feu*, 300.
——— *sur les* INITIATIONS *anciennes et modernes*, 303.
——— *et obs. sur les Loix* Feodales, 305.
REFLEXIONS *sur l'etat actuel de l'agriculture*, 455.
REYNOLDS, Sir Joshua, encomium on his pictures, 130—131. General imperfection of, 183.
RICHARDSON, *Senior*, the painter, his works commended, 135.
——— ——— *Junior*, his performances, 136. The *literary* productions of *both* characterised, ib.
ROBIN, Abbé, his inquiries concerning ancient and modern *Initiations*, 303.
ROCHEFORT, Mr. de, his researches concerning the symphony of the ancients, 554.
ROMAN, Chevalier, remarkable story and catastrophe of, 97.
RONDEAU, M. du, his memoir concerning wool, 533.
ROT, in sheep, cause of, investigated, 422. Various theories concerning, 423. Remedies for, 425.
ROUBILIAC, his excellence in the execution of monuments, &c. 189.
RUSSIAN Traveller, remarkable conversation with, 108.
RUTHAL, Thomas, Bishop of Durham, curious story of, 116.
RYSBRACH's monuments, &c. praised, 188.

SAMOS, island of, antiquities there, 453.
SCHEELE, M. his chemical observations and experiments on air and fire, 339.
SCHOOL, of agriculture, scheme for, 427.
SCHOOLS, *Popish*, none at present, of any consequence in England, 407.
SCOTLAND, remarkable places in, for the notice of travellers, 112. The peerage of, how degraded since the union, 226—227.
SCRIPTURE, sacred, various passages in our common translation of, corrected, 87.
——— criticisms and illustrations of sundry texts, 164—172. The truth of the Scriptures vindicated, against Lord Bolingbroke, &c. 174. Corruptions in, accounted for, 176. Testimonies in support of, ib. Farther testimonies, 321.
SEA, method of calming the agitation of, 508.
SHEEP. See ROT.
SHIPS, driven on shore, method of removing in safety, though damaged in their bottoms, 270.
SILBERSCHLAG, M. his description of the Uranometer, 505.
SMALL-POX. See HUNTER.
SOUL, immortality of, philosophically discussed, 497.
SPIRIT of the Croisades, 456.
STEEL. See PERRET.
ST. VINCE, M. his investigation of

of the principles of progreſſive and rotatory motion, 442.
SULZER, M. his conſiderations on the immortality of the Soul, 497.
S——Y, Earl of, his character, 405.
SWITZERLAND, ſtriking particulars relative to the natural hiſt. of, 541. Topographical views of, ib.
SYNTIPAS, a manuſcript ſo entitled, in the French King's library, 557.

TARTARS, their ſimplicity of manners, &c. 449. Their groſs ignorance, 549.
TELMISSUS, ruins of, 558. Theatre of, 559. Medals of, ib.
THERMOMETER, exper. and obſ. relative to, 277.
THUMBERG, Dr. his Journal of a voyage to Japan, 270.
TICUNAS, experiments made with that poiſon, 267.
TIN. See MARCI.
TORFÆUS, the Icelandic Writer, ſome account of, 115.
TOURMALINE, principles of, 495.
TRUTH, the free diſcuſſion of, diſcuſſed, 499.

VEGETABLES, &c. diſquiſition concerning the true cauſe of the colours of, 511.
VENICE, ſtate of the *Drama* there, 141.
VESUVIUS, account of the great eruption of, in Auguſt 1779, 268.
VETERINARIAN Academy, ſcheme for the eſtabliſhment of, 427.
VOYAGE pittoreſque de la Grece, No. VI. 453.
VOYAGES. See HARPE.
URANOMETER, deſcript. of, 505.

WALTER, Profeſſor, his letter to Dr. Hunter, on the veins of the eye, &c. 493.
WAR, conſidered as a ſcience, 553.
WESLEY, Mr. ſharply aſſailed by an Iriſh Roman Catholic, 237.
WHEAT, mode of *ſetting* inſtead of *ſowing*, in Norfolk, 418. Great utility of this improvement, 419.
WILSON, Biſhop, memoirs of his life, 13. Remarkable epocha in his hiſtory, 15. Character of his writings, 16.
WILSON, Mr. his account of an extraordinary degree of cold at Glaſgow, 275.
WINE. See ZELLER.
WITRY, Abbé, concerning foſſils in the diſtrict of Tournay, 533.
WOOL, memoir concerning the growth and culture of, in different countries, 533.

XENOPHON. See MAIZEROY.

ZELLER's method of diſcovering the adulteration of Rheniſh wine, 537.
ZINZENDORF, Count, forms, at ten years of age, the reſolution of becoming a preacher, 213.
ZOFFANII, his comic paintings commended, 131.

END OF VOL. LXIV.